



United States
Department of
Agriculture



NRCS

Natural
Resources
Conservation
Service

In cooperation with
Washington State
Department of Natural
Resources and Washington
State University Agricultural
Research Center

Soil Survey of Franklin County, Washington



How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

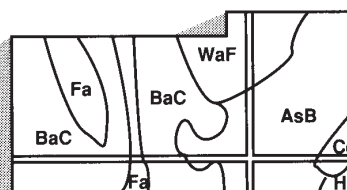
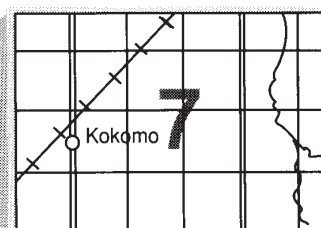
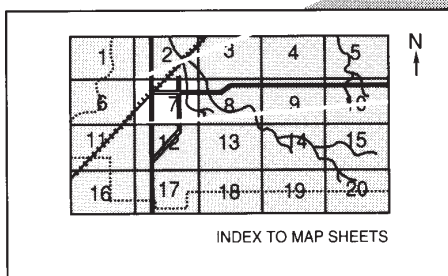
To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1992. Soil names and descriptions were approved in 1993. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1993. The soil legend and classifications were amended in 2004. The soil properties information was updated in 2006. The tables for this report were generated in 2006. This survey was made cooperatively by the Natural Resources Conservation Service and the Washington State Department of Natural Resources and Washington State University Agricultural Research Center. The survey is part of the technical assistance furnished to the Franklin County Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at <http://soildatamart.nrcs.usda.gov>. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at <http://soils.usda.gov/survey>.

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Cover: At top, nonirrigated winter wheat in an area of Ritzville silt loam, 10 to 15 percent slopes; at bottom, irrigated potatoes in an area of Quincy loamy fine sand, 0 to 15 percent slopes.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

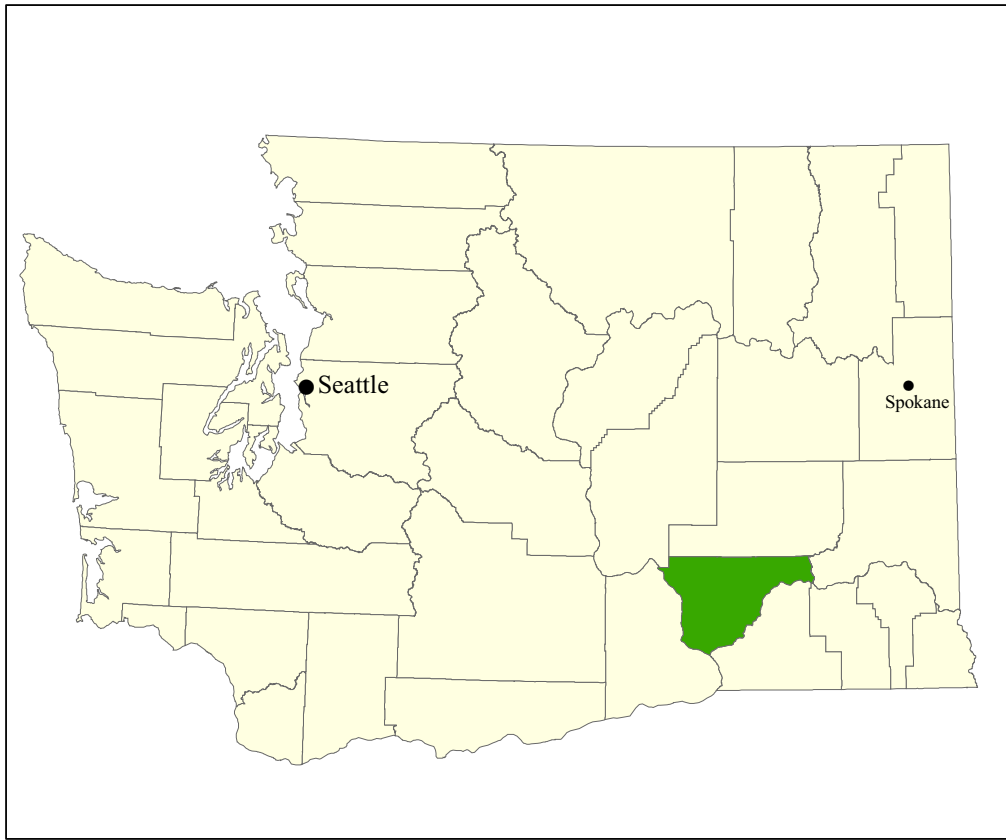
This soil survey is designed for many different users. Farmers, ranchers, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and technical specialists can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Gus Hughbanks
State Conservationist
Natural Resources Conservation Service



Location of Franklin County in Washington.

Soil Survey of Franklin County, Washington

By Edward A. Brincken, Natural Resources Conservation Service

Fieldwork by Edward A. Brincken, Douglas A. Gehring, Pat Davis, Thomas E. Reedy, and Dale L. Olsen, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Washington State Department of Natural Resources and Washington State University
Agricultural Research Center

FRANKLIN COUNTY is in the southeastern part of Washington. It consists of privately owned land; land that is managed by the U.S. Department of the Interior, Bureau of Reclamation and Bureau of Land Management; and land that is managed by the Washington State Game Department for the U.S. Department of Energy. The county is about 1,255 square miles, or about 806,000 acres. Of the total acreage, about 230,000 acres are irrigated cropland, 220,000 acres are nonirrigated cropland, 195,000 acres are rangeland, and the remaining 165,000 acres are urban land, roads, buildings, and water. Farming is the major enterprise in the area. The main crops include winter wheat, alfalfa hay, corn, potatoes, asparagus, peas, wine grapes, sweet corn, vegetable seeds, apples, cherries, and pasture. Most of the irrigated cropland is in the western part of the survey area, and most of the nonirrigated cropland is in the eastern part. A wheat-fallow crop rotation is used on the nonirrigated cropland because of the low annual precipitation.

This survey updates the soil survey of Franklin County, Washington, published in 1917 (Van Duyne and others, 1917) and the Soil Descriptions and Interpretations of the Riverview Area, Franklin County, Washington, published in 1974 (Call, 1974).

General Nature of the County

This section gives general information about the county. It describes the history and development, physiography, drainage and water supply, geology, and climate.

History and Development

Franklin County is bounded on the west by the Columbia River, on the south and southeast by the Snake River, and on the east by the Palouse River. Adams County is along the northern border, and Grant County is along the extreme northwestern border. Pasco, the county seat, is in the southernmost part of the county, near the confluence of the Columbia and Snake Rivers.

The first white men in the area were members of the Lewis and Clark Expedition. They arrived by way of the Snake River from present-day Idaho in October 1805 (Oberst, n.d.). They spent several days at the confluence of the Snake and Columbia

Rivers trading with the Indians. Fur trading around 1811 marked the next influx of white men. By 1821 the powerful Hudson's Bay Company dominated fur trading in the entire Pacific Northwest.

The arrival of missionaries in the 1830's and the rush of westward settlers on the Oregon Trail enroute to the Willamette Valley in the late 1840's soon brought settlers to southeast Washington. Franklin County was not settled until settlement of the Walla Walla Valley was well established in the 1860's and 1870's. The early settlers were mostly men who used the open range for cattle and sheep grazing.

The first established settlement in the county was at the mouth of the Snake River. It was established in 1879. It was here that the Northern Pacific Railroad started the construction town of Ainsworth and commenced construction of a railroad bridge over the Snake River.

Ainsworth became the first county seat when Franklin County was established in 1883. After completion of the bridge in 1884, the Northern Pacific Railroad moved its shops and buildings 3 miles up the Columbia River and started the town of Pasco. Pasco became the county seat in 1887, and Ainsworth disappeared completely.

Nonirrigated winter wheat was the first major agricultural crop grown in the early 1900's. Cultivation of soils such as those of the Shano and Ritzville series was most successful. These soils produced adequate yields under a 2-year wheat-summer fallow rotation. Farming of the sandy soils, such as those of the Quincy and Hezel series, was very difficult because of droughtiness and the risk of wind erosion. Those who attempted to farm the sandy soils experienced disastrous results, and the land was subsequently abandoned (Van Duyne and others, 1917).

In the early 1900's, irrigated farming was confined primarily to areas along the Columbia and Snake Rivers. Franklin County Irrigation District No.1 is the only survivor of many early private irrigation projects. The others were abandoned either because of poor engineering or inadequate financing. This district pumps irrigation water from the Columbia River to approximately 3,700 acres in the Riverview area, just west of Pasco. This total is anticipated to increase to 4,700 acres. The success and stability of Franklin County was assured with the completion of the Grand Coulee Dam in the 1940's and subsequent development of the Columbia Basin Irrigation Project. In 1953 irrigation water was pumped from Lake Roosevelt behind Grand Coulee Dam through a series of tunnels, siphons, storage dams, and canals and delivered to irrigation block 11. Construction of this irrigation project continued until completion in block 21 in 1966 (USDI, Bureau of Reclamation).

A relatively long growing season of 180 to 200 days enables farmers to grow about 40 kinds of crops. Major crops include wheat and barley in nonirrigated areas and wheat, peas, beans, alfalfa, field corn, potatoes, and sweet corn in irrigated areas. Specialized crops that have had the greatest increase are apples, wine grapes, and asparagus.

Livestock operations are limited primarily to feedlots and intensive pasture management. In fall and winter, large numbers of cattle are trucked into the county to feed in areas of crops such as corn, wheat, and turnips.

Physiography

The eastern part of Franklin County is characterized by dissected loess-mantled hills. Two major coulees are in the county. Washtucna Coulee extends westerly from the northeastern part of the county and connects with Esquatzel Coulee in the town of Connell. Esquatzel Coulee extends southerly and disappears beneath gravelly and sandy outwash just a few miles north of Pasco. The coulees are $\frac{1}{4}$ to $\frac{1}{2}$ mile wide and 200 to 350 feet deep. They follow the course of the ancestral Palouse River that now flows along the eastern border of the county.

Channeled scabland is along the canyons of the Snake and Palouse Rivers. Major areas of nearly level to undulating terraces of channeled scabland are in the far eastern corner of the county and in an area a few miles northwest of Mesa. Rock outcroppings, cliffs, and small canyons are common surface features in these areas.

Esquatzel Coulee generally separates the loess-mantled hills to the east from a level to undulating outwash plain to the west. This plain is characterized by windblown sandy glacial outwash with dune-interdune features in many areas. These dunes trend northeast, the same direction as the dominant winds. Extensive areas of gravelly terraces are in the vicinity of Pasco and along the Snake River, near Dalton Lake. Gravel terraces are also in Ringold Coulee, near Basin City, where they extend from the area of scabland and trend southwest of the town of Ringold, along the Columbia River.

Along the Columbia River are very steep escarpments of unconsolidated laminated lacustrine silt and clay. They extend from the northern county boundary to 15 miles northwest of Pasco. The drop in elevation is about 500 feet within a distance of $\frac{1}{4}$ to $\frac{1}{2}$ mile. These escarpments are known locally as the White Bluffs; they make up one of the most recognized landmarks in south-central Washington. The White Bluffs and other steep coulee walls along the north side of Ringold Coulee are extremely unstable and prone to landslides.

Drainage and Water Supply

Although there are numerous natural drainageways in Franklin County, few of them carry water except immediately following periods of snowmelt or when used to divert or transport irrigation water. There is no surface runoff from precipitation in most of the county; water is removed by seepage and evaporation.

In 1990 land irrigated by the Columbia River Irrigation Project comprised about 175,000 acres. About 20,000 acres is irrigated by water from wells, and about 35,000 acres is irrigated by water pumped from the Columbia and Snake Rivers. There is the potential to irrigate approximately 110,000 more acres under the proposed extension of the East Low and East High Canals in the Columbia Basin Irrigation Project (Franklin Conservation District, Annual Plan of Work).

The best producing wells are in the southern part of the county, known locally as the Pasco Greenbelt Area (Brown, 1979). This area is underlain by an unconfined aquifer that extends north from Pasco to approximately Alder Road, east to Smith Canyon, west to Road 68, and south to the Snake and Columbia Rivers. This area is recharged by seepage from the Columbia Basin Irrigation Project. Yields are 1,000 to 3,000 gallons per minute where the wells are in highly permeable, coarse grained glaciofluvial deposits (Pasco Gravel).

In other areas of the county, groundwater commonly is deep in the underlying basalt. Yields in these areas are low or very low, commonly a few hundred gallons per minute, with only a few exceptions.

The irrigated portion of Franklin County has been extensively artificially drained. Many soils, including those of the Hezel, Sagemoor, Kennewick, Warden, Sagehill, and Ottmar series, have underlying layers of silty laminated lacustrine deposits that can develop a perched water table. A perched water table develops as a result of overirrigation and subterranean flow as well as leakage from poorly lined irrigation canals.

The Bureau of Reclamation has responsibility for drainage of land within the Columbia Basin Irrigation Project. By 1984 the bureau had installed approximately 800 miles of buried tile in Franklin County.

In the Riverview area, drainage problems continue to be a concern. The levee along the Columbia River was built to prevent impounded water behind McNary Dam

from inundating adjacent areas of Franklin County. Unfortunately, it also prevents drainage of seepage from the irrigation blocks into the Columbia River. This problem, however, was virtually eliminated by the placement of two pump stations that divert seepage water over the levee and discharge it into the impounded Columbia River (Lake Wallula).

Another pump station is at the junction of Selph Landing and Glade North Roads, at the mouth of Esquatzel Coulee. Drainage water that threatened the Tri-Cities Airport by way of surface channels is now pumped into the Esquatzel Wasteway and discharged into the Columbia River further west.

Geology

By Randy Brown, consulting geologist, Pasco, Washington.

Franklin County is in the eastern part of the Pasco Basin, the topographic and structural low point of the Columbia River Basalt Plateau. The Columbia, Snake, Yakima, and Walla Walla Rivers are within a few miles of each other.

The oldest visible rocks and those penetrated by deep wells are the basaltic lava flows of the Columbia River Basalt Group and its constituent formations. The flows were laid down over several tens of millions of years as vast sheet floods. They emanated largely from fissures in northeastern Oregon and southeastern Washington and advanced into the developing Pasco Basin, where many solidified.

The youngest lava flows are about 6.5 million years old. By that time, the lava had accumulated to a thickness of at least 10,000 feet and probably 12,000 feet or more. The rate of filling of the basin was balanced by downwarping so that at no time was the land elevated.

During the latter stages of basalt flow emission, volcanic debris from the early Cascade Range was transported east by wind and water, deposited on the land surface, and buried by basalt flows. The basaltic lava flows, in addition to basining, were being uplifted into giant anticlinal ridges trending roughly east and west. Flattening of the gradient of the ancestral Snake and Columbia Rivers because of basining and anticlinal uplift athwarting their courses resulted in deposition of the sediment of the Ringold Formation in the Pasco Basin. The sediment was deposited to an altitude of about 1,000 feet. The existing rivers then were able to maintain a channel through the rising hills at Wallula Gap.

The Ringold Formation of the Pliocene contains many fossils of species of browsing animals. It is slightly deformed tectonically, attesting to continued structural deformation that probably persists today.

Deposition of the Ringold Formation ceased early in the Pleistocene, and erosion of the formation began. The formation reflects increased downcutting of the Horse Heaven Hills, possibly a slower rate of rise of the hills, and possibly increased runoff from glacial meltwater early in the Ice Age.

During the Ice Age, glacial meltwater floods repeatedly coursed across eastern Washington. The earliest floods may have been nearly 100,000 years ago. The largest were from Glacial Lake Missoula about 18,000 and 12,000 years ago, when the rate of flow reached a maximum of about 14 cubic miles per hour.

The Pasco Basin, a major stilling basin, was flooded to levels as high as 1,150 feet. Sediment deposited by the floods is known as Pasco Gravel (main stream areas) and Touchet Beds (slack water deposits). Within the flood sequence are deposits from at least one flood from Glacial Lake Bonneville.

Many vertebrate fossils (mammoths, bison, horses, and other grazing species) are associated with the flood deposits. Increased aridity at the end of the Ice Age probably contributed to their extinction. The increased aridity peaked about 6,000 years ago, in part because of the rise and growth of the current Cascade Range.

Numerous layers of tephra (volcanic ash) are dated and identified with eruptions in the Cascade Range, permitting dating of formations, fossils, and artifacts. The most useful ones include a set from Mount St. Helens about 12,000 years before present (BP) and one from Mount Mazama about 6,700 years BP.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

The climate tables are created from data recorded at the Connell 1 W, Eltopia 8 WSW, and Kennewick, Washington, climate stations. Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from data recorded at the First Order station at Walla Walla, Washington.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Connell 1 W, Eltopia 8 WSW, and Kennewick in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

Information in the following paragraphs is from data recorded at the Connell 1 W climate station.

In winter, the average temperature is 33.1 degrees F and the average daily minimum temperature is 26.2 degrees. The lowest temperature on record, which occurred on February 3, 1996, is -19 degrees. In summer, the average temperature is 69.7 degrees and the average daily maximum temperature is 86.1 degrees. The highest temperature, which occurred on August 4, 1961, is 116 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units". During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual total precipitation is about 8.54 inches. Of this, about 2.34 inches, or 27 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 1.35 inches on July 5, 1978. Thunderstorms occur on about 15 days each year, and most occur in June.

The average seasonal snowfall is 5.2 inches. The greatest snow depth at any one time during the period of record was 11 inches recorded on January 19, 1993. On an average, 6 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 8.5 inches recorded on November 30, 1985.

The average relative humidity in midafternoon is about 56 percent. Humidity is higher at night, and the average at dawn is about 76 percent. The sun shines 79 percent of the time in summer and 24 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 6.2 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from

the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records, from field or plot experiments on the same kinds of soil, and from the expertise of local producers and the Extension Service.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

For more information on the soil survey procedures and guidelines, refer to the National Soil Survey Handbook (<http://soils.usda.gov/technical/handbook/>) and the Soil Survey Manual (Soil Survey Division Staff, 1993).

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Very Deep and Deep Soils on Terraces, Hills, and Dunes That Receive 6 to 9 Inches of Precipitation

1. Quincy-Royal-Hezel

Excessively drained to well drained, very deep and deep soils; on dunes and terraces

This map unit makes up about 30 percent of the survey area. It is in the southern and northwestern parts of the survey area. The soils formed in mixed sand, sandy alluvium, and eolian sand over glaciofluvial or glaciolacustrine deposits. Elevation is 350 to 1,250 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Quincy soils are on dunes and terraces. These soils formed in mixed sand and in mixed sand over very gravelly alluvium, loamy glaciolacustrine deposits, or a duripan. They are deep and very deep and are excessively drained.

Royal soils are on terraces. These soils formed in sandy alluvium. They are very deep and well drained.

Hezel soils are on terraces. These soils formed in eolian sand over glaciofluvial deposits. They are very deep and somewhat excessively drained.

Of minor extent in this unit are Koehler, Malaga, Ottmar, Quinton, Rinquin, Sagemoor, and Timmerman soils; Torripsamments; Urban land; and Wanser and Winchester soils.

This unit is used primarily for irrigated cultivated crops, orchards, alfalfa hay, and pasture. Irrigated crops grown include grains, corn, potatoes, beans, carrots, and asparagus. Various grasses are grown for hay, pasture, and seed. This unit is also used for urban development, livestock grazing, and wildlife habitat.

2. Shano-Warden

Well drained, deep and very deep soils; on hills and terraces

This map unit makes up about 11 percent of the survey area. It is in the central and north-central parts of the survey area. The soils formed in loess and in loess over lacustrine or glaciofluvial deposits. Elevation is 500 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Shano soils are on hills. These soils formed in loess and in loess over glaciofluvial deposits. They are very deep and well drained.

Warden soils are on terraces. These soils formed in a thin mantle of loess over lacustrine deposits. They are deep and very deep and are well drained.

Of minor extent in this unit are Alderdale and Kennewick soils.

This unit is used for irrigated and nonirrigated agriculture and for livestock grazing. Cultivated crops, alfalfa hay, pasture, and orchards are grown in the irrigated areas. The crops include winter wheat, corn, potatoes, beans, carrots, peas, and asparagus. Various grasses are grown for hay, pasture, and seed. Nonirrigated wheat and barley are grown under a summer-fallow crop rotation system.

3. Sagehill-Neppel-Finley

Well drained, very deep and deep soils; on terraces

This map unit makes up about 13 percent of the survey area. It is in the west-central part of the survey area (fig. 1). The soils formed in mixed outwash, alluvium, glaciolacustrine deposits, and eolian deposits. Elevation is 400 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Sagehill soils are on terraces. These soils formed in eolian deposits over lacustrine deposits or glacial outwash. They are very deep and deep and are well drained.

Neppel soils are on terraces. These soils formed in alluvium over glacial outwash. They are very deep and well drained.

Finley soils are on terraces. These soils formed in gravelly alluvium. They are very deep and well drained.

Of minor extent in this unit are Burbank, Chedehap, Ephrata, Eltopia, Kennewick, Novark, Ottmar, Schlomer, Tauncal, Taunton, and Wiehl soils.

This unit is used primarily for irrigated cultivated crops, orchards, alfalfa hay, and pasture. Irrigated crops grown include winter wheat, corn, potatoes, beans, carrots, and asparagus. Various grasses are grown for hay, pasture, and seed. This unit is also used for urban development, livestock grazing, and wildlife habitat.

Moderately Deep and Shallow Soils on Hills and Benches That Receive 6 to 9 Inches of Precipitation

4. Prosser-Starbuck

Well drained, moderately deep and shallow soils; on hills and benches

This map unit makes up about 9 percent of the survey area. It is in the north-central part of the survey area. The soils formed in loess and glaciofluvial deposits over basalt. Elevation is 400 to 1,200 feet. The average annual precipitation is 6 to 9



Figure 1.—Irrigated cropland in an area of general soil map unit 3.

inches, the average annual air temperature is 50 to 53 degrees F, and the frost free season is 180 to 200 days.

Prosser soils are on hills and benches. These soils formed in loess and glaciofluvial deposits over basalt. They are moderately deep and well drained.

Starbuck soils are on hills and benches. These soils formed in loess over basalt. They are shallow and well drained.

Of minor extent in this unit are Bakeoven, Esquatzel, and Kiona soils.

This unit is used primarily for livestock grazing. The Prosser soil is suited to irrigated crops such as corn, potatoes, beans, winter wheat, peas, onions, carrots, asparagus, and pasture. The Starbuck soil generally is suited to irrigated pasture, alfalfa hay, and winter wheat.

Very Deep and Moderately Deep Soils on Terraces, Hills, and Benches That Receive 9 to 12 Inches of Precipitation

5. Ritzville-Ritzcal-Wacota

Well drained, very deep soils; on hills and terraces

This map unit makes up about 25 percent of the survey area. It is in the eastern half of the survey area (fig. 2). The soils formed in loess and in loess mixed with volcanic ash. Elevation is 800 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Ritzville soils are on hills. These soils formed in loess. They are very deep and well drained.

Ritzcal soils are on hills. These soils formed in loess. They are very deep and well drained.



Figure 2.—Farmstead in an area of general soil map unit 5.

Wacota soils are on hills and terraces. These soils formed in loess mixed with volcanic ash. They are very deep and well drained.

Of minor extent in this unit are Cleman and Nansene soils.

This unit is used primarily for irrigated and nonirrigated crops and for livestock grazing. The unit is suited to winter wheat, spring wheat, and barley grown under a summer-fallow crop rotation system.

6. Roloff-Kahlotus-Farrell

Well drained, moderately deep and very deep soils; on terraces, hills, and benches

This unit makes up about 12 percent of the survey area. It is along the Snake River and in the northeastern part of the survey area. The soils formed in loess and glaciofluvial deposits on scabland and escarpments above the Snake River and Washtucna Coulee. Elevation is 450 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Roloff soils are on benches and hills. These soils formed in loess and glaciofluvial deposits over basalt. They are moderately deep and well drained.

Kahlotus soils are on terraces. These soils formed in loess over glaciofluvial deposits. They are very deep and well drained.

Farrell soils are on terraces. These soils formed in loess over glaciofluvial deposits. They are very deep and well drained.

Of minor extent in this unit are Lickskillet, Kennewick, Magallon, Starbuck, Stratford, and Willis soils.

This unit is used primarily for irrigated and nonirrigated crops, livestock grazing, and wildlife habitat. Irrigated crops grown include winter wheat, corn, alfalfa hay, and pasture.

Broad Land Use Considerations

The soils in the county have the potential for a variety of uses, including irrigated cropland, orchards, vineyards, nonirrigated cropland, livestock grazing, wildlife habitat, homesite development, and recreation.

About 29 percent of the county is used as irrigated cropland. The major crops grown include potatoes, corn, winter wheat, alfalfa, asparagus, carrots, beans, apples, grapes, pears, cherries, and peaches. Grasses and legumes are grown for hay, pasture, and seed. The irrigated cropland is mainly in the western and southern parts of the county, dominantly in general soil map units 1, 2, 3, and 6. The major soils are those of the Sagehill, Warden, Neppel, Kahlotus, Farrell, Royal, Roloff, Hezel, and Finley soils on terraces; the Quincy series on dunes; and the Shano series on uplands. The Sagehill, Warden, Neppel, Hezel, Finley, and Quincy soils are subject to wind erosion. The Sagehill, Warden, Neppel, Kahlotus, Farrell, and Shano soils on the steeper slopes are subject to water erosion.

About 27 percent of the county is used as nonirrigated cropland. The main crop is winter wheat. The nonirrigated cropland is mainly in the eastern part of the county, dominantly in general soil map units 2, 5, and 6. The major soils are those of the Shano, Ritzville, Wacota, and Ritzcal series on uplands and the Kahlotus, Warden, Roloff, and Farrell series on terraces. The main limitations for nonirrigated crops are the low annual precipitation and the hazards of wind and water erosion.

About 24 percent of the county is used for livestock grazing. These areas are mainly in general soil map units 4 and 6. The major soils are those of the Prosser, Starbuck, Neppel, Roloff, Kahlotus, and Farrell series on benches, hillsides, and ridgetops. The main limitations for the production of forage are the low annual precipitation and low available water capacity.

Most of the general soil map units are suited to use as homesite development. In general, the nearly level to strongly sloping areas of the Shano, Warden, Sagehill, Ritzville, Kahlotus, Farrell, and Wacota soils in units 2, 3, 5, and 6 are well suited to use as homesites. Depth to the duripan or to bedrock severely limits use of the Prosser, Starbuck, and Roloff soils in units 4 and 6. The Quincy, Neppel, and Finley soils in units 1 and 3 are limited for use as septic tank absorption fields by the rapid and very rapid permeability of the substratum. The Hezel soils in unit 1 are limited for use as septic tank absorption fields by the moderately slow permeability.

The soils in all of the general soil map units are suited to use as wildlife habitat. Wetland and shallow water areas in units 1, 4, and 6 provide good habitat for waterfowl. All of the units provide suitable habitat for upland game birds, such as pheasant and quail, if a source of water is available. General soil map units 5 and 6 provide good habitat for deer and coyote.

The suitability of the soils in the county for recreation is low to high, depending on the intensity of the expected use and the properties of the soils. The Columbia and Snake Rivers are used for fishing and boating. Reservoirs and artificial wetland throughout the county are used for fishing and hunting and as wildlife habitat.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown

on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Shano silt loam, 2 to 5 percent slopes, is a phase of the Shano series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Sagehill-Kennewick-Shano complex, 15 to 60 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Badland is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Alderdale extremely cobbly loamy sand, 0 to 5 percent slopes

Composition

Alderdale and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Outwash over basalt

Slope range: 0 to 5 percent

Elevation: 350 to 950 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—pale brown extremely cobbly loamy sand

3 to 30 inches—pale brown extremely cobbly fine sand

30 to 35 inches—pale brown extremely cobbly loamy sand

35 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Very low

Contrasting Inclusions

- Soils that are more than 40 inches deep to bedrock

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, depth to bedrock, surface rock fragments, sandy surface layer, permeability

2—Aquents-Halaquepts complex, nearly level

Composition

Aquents and similar soils—65 percent

Halaquepts and similar soils—30 percent

Contrasting inclusions—5 percent

Setting

Position on landscape: Flood plains

Parent material: Aquents—sandy alluvium and lacustrine deposits; Halaquepts—lacustrine deposits with a thin mantle of loess

Slope range: 0 to 3 percent

Elevation: 300 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Representative Profile

Aquents

0 to 4 inches—dark grayish brown fine sand

4 to 20 inches—brown to dark grayish brown fine sand

20 to 60 inches—dark grayish brown fine sand

Halaquepts

0 to 5 inches—light brownish gray loam

5 to 12 inches—light brownish gray loam

12 to 60 inches—stratified light brownish gray and pale brown very fine sandy loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Aquents—poorly drained; Halaquepts—somewhat poorly drained

Permeability: Aquents—moderately slow to rapid; Halaquepts—moderate

Available water capacity: Aquents—moderate to very high; Halaquepts—very high

Depth to seasonal high water table: Aquents—at the surface to a depth of 18 inches below the surface in April through November; Halaquepts—6 to 18 inches in April through November

Frequency of flooding: Occasional in April through June

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 40 inches or less
- Soils that have sand and gravel at a depth 40 inches or less

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, wetness, sandy surface layer of Aquents, salinity and sodicity of Halaquepts

3—Badland-Xeric Torriorthents complex, very steep

Composition

Badland—45 percent

Xeric Torriorthents and similar soils—40 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terrace escarpments

Parent material: Badland—weathered siltstone and sandstone; Xeric Torriorthents—loess and weathered siltstone and sandstone

Slope range: 30 to 90 percent

Elevation: 350 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Badland

Description of areas: Barren areas of exposed, weathered bedrock

Xeric Torriorthents

Representative profile

0 to 3 inches—light brownish gray silt loam

3 to 12 inches—very pale brown silt loam

12 to 60 inches—pale yellow silt loam

Soil properties and qualities

Depth class: Moderately deep to very deep (20 to 60 inches or more)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low to very high

Runoff: Very rapid

Water erosion hazard: Very severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are loamy fine sand or very fine sandy loam in the upper 20 inches
- Soils that have a duripan at a depth of 10 to 40 inches

Major Use

Wildlife habitat

4—Burbank loamy fine sand, 0 to 5 percent slopes

Composition

Burbank and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Eolian sand over gravelly glacial flood deposits

Slope range: 0 to 5 percent

Elevation: 350 to 950 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—brown loamy fine sand

3 to 24 inches—brown loamy fine sand

24 to 27 inches—grayish brown very gravelly loamy fine sand

27 to 60 inches—gray and dark gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very gravelly in the upper 24 inches
- Sagehill soils
- Royal soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, permeability

Livestock grazing

Corrosivity, sandy surface layer, coarse texture of subsoil and substratum

5—Burbank loamy fine sand, 5 to 10 percent slopes

Composition

*Burbank and similar soils—*80 percent

*Contrasting inclusions—*20 percent

Setting

Position on landscape: Terraces

Parent material: Eolian sand over gravelly glacial flood deposits

Slope range: 5 to 10 percent

Elevation: 350 to 950 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—brown loamy fine sand
 3 to 24 inches—brown loamy fine sand
 24 to 27 inches—grayish brown very gravelly loamy fine sand
 27 to 60 inches—gray and dark gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low
Runoff: Slow
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very gravelly in the upper 24 inches
- Sagehill soils
- Royal soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, permeability, slope

Livestock grazing

Corrosivity, permeability, sandy surface layer, coarse texture of the subsoil and substratum

6—Burbank gravelly loamy fine sand, 15 to 35 percent slopes

Composition

Burbank and similar soils—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces
Parent material: Eolian sand over gravelly glacial flood deposits
Slope range: 15 to 35 percent
Elevation: 350 to 950 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown gravelly loamy fine sand
 5 to 18 inches—grayish brown gravelly loamy sand
 18 to 38 inches—light brownish gray very gravelly loamy sand
 38 to 60 inches—gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Slight

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils
- Royal soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, permeability, sandy surface layer, slope, coarse texture of the subsoil and substratum

7—Burke very fine sandy loam, 0 to 2 percent slopes

Composition

Burke and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess and glaciolacustrine deposits over a duripan

Slope range: 0 to 2 percent

Elevation: 900 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—pale brown very fine sandy loam

8 to 22 inches—pale brown silt loam

22 to 26 inches—white silt loam

26 to 36 inches—indurated, carbonate- and silica-cemented duripan

36 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are more than 60 inches deep to a duripan

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to the duripan, compaction hazard

Livestock grazing

Corrosivity, depth to the duripan

8—Burke very fine sandy loam, 2 to 5 percent slopes***Composition***

Burke and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess and glaciolacustrine deposits over a duripan

Slope range: 2 to 5 percent

Elevation: 900 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—pale brown very fine sandy loam

8 to 22 inches—pale brown silt loam

22 to 26 inches—white silt loam

26 to 36 inches—indurated, carbonate- and silica-cemented duripan

36 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are more than 60 inches deep to a duripan

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to the duripan, compaction hazard

Livestock grazing

Corrosivity, depth to the duripan

9—Burke silt loam, 2 to 5 percent slopes***Composition***

Burke and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess and glaciolacustrine deposits over a duripan

Slope range: 2 to 5 percent

Elevation: 900 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—dark grayish brown silt loam

4 to 22 inches—dark brown silt loam

22 to 32 inches—indurated, carbonate- and silica-cemented duripan

32 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are more than 60 inches deep to a duripan

Major Use

Irrigated cropland

Major Management Limitations**Irrigated cropland**

Depth to the duripan, compaction hazard

10—Chedehap fine sandy loam, 0 to 2 percent slopes***Composition***

Chedehap and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits

Slope range: 0 to 2 percent

Elevation: 400 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown fine sandy loam

4 to 8 inches—pale brown fine sandy loam

8 to 18 inches—pale brown sandy loam

18 to 31 inches—pale brown and light gray sandy loam

31 to 39 inches—pale brown loamy coarse sand

39 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 26 to 40 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

11—Chedehap fine sandy loam, 2 to 5 percent slopes

Composition

Chedehap and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits

Slope range: 2 to 5 percent

Elevation: 400 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown fine sandy loam
4 to 8 inches—pale brown fine sandy loam
8 to 18 inches—pale brown sandy loam
18 to 31 inches—pale brown and light gray sandy loam
31 to 39 inches—pale brown loamy coarse sand
39 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid over very rapid
Available water capacity: Moderate
Effective rooting depth: 26 to 40 inches
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, permeability, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

12—Chedehap fine sandy loam, 5 to 10 percent slopes***Composition***

Chedehap and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces
Parent material: Glaciofluvial deposits
Slope range: 5 to 10 percent
Elevation: 400 to 1,100 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown fine sandy loam
4 to 8 inches—pale brown fine sandy loam
8 to 18 inches—pale brown sandy loam
18 to 31 inches—pale brown and light gray sandy loam

31 to 39 inches—pale brown loamy coarse sand

39 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 26 to 40 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, slope, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

13—Cleman fine sandy loam, 0 to 2 percent slopes

Composition

Cleman and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Elevation: 400 to 1,400 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 49 to 53 degrees F

Frost-free season (32 degrees F): 150 to 200 days

Typical Profile

0 to 11 inches—grayish brown fine sandy loam

11 to 28 inches—grayish brown very fine sandy loam

28 to 60 inches—stratified, grayish brown fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: High

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Frequency of flooding: Rare in April and May

Contrasting Inclusions

- Soils that are loamy sand throughout the profile
- Soils that are wet

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability

14—Eltopia very fine sandy loam, 0 to 2 percent slopes

Composition

Eltopia and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over a duripan

Slope range: 0 to 2 percent

Elevation: 550 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown silt loam

13 to 25 inches—brown very fine sandy loam

25 to 35 inches—light brownish gray and light gray, weakly cemented to moderately cemented duripan

35 to 60 inches—light brownish gray extremely gravelly very fine sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate over slow over rapid

Available water capacity: Moderate

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have 35 to 60 percent gravel between depths of 10 and 60 inches
- Soils that do not have a duripan

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to the duripan, depth to gravel, compaction hazard

Livestock grazing

Corrosivity, permeability

15—Eltopia very fine sandy loam, 2 to 5 percent slopes***Composition***

Eltopia and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over a duripan

Slope range: 2 to 5 percent

Elevation: 550 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown silt loam

13 to 25 inches—brown very fine sandy loam

25 to 35 inches—light brownish gray, weakly cemented to moderately cemented
duripan

35 to 60 inches—light brownish gray extremely gravelly very fine sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate over slow over rapid

Available water capacity: Moderate

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have 35 to 60 percent gravel between depths of 10 and 60 inches
- Soils that do not have a duripan

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to the duripan, depth to gravel, compaction hazard

Livestock grazing

Corrosivity, permeability

16—Ephrata sandy loam, 0 to 2 percent slopes***Composition***

Ephrata and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Outwash plains and terraces

Parent material: Glacial outwash mixed with loess in the upper part

Slope range: 0 to 2 percent

Elevation: 900 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—light brownish gray sandy loam

6 to 14 inches—pale brown fine sandy loam

14 to 28 inches—pale brown gravelly fine sandy loam

28 to 60 inches—multicolored extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over rapid

Available water capacity: Moderately high

Effective rooting depth: 20 to 40 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Use

Irrigated cropland

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to sand and gravel, compaction hazard

17—Esquatzel silt loam, 0 to 2 percent slopes***Composition***

Esquatzel and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Flood plains

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Elevation: 600 to 1,600 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 49 to 53 degrees F

Frost-free season (32 degrees F): 150 to 200 days

Typical Profile

0 to 5 inches—brown silt loam

5 to 15 inches—brown silt loam

15 to 48 inches—pale brown very fine sandy loam

48 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Frequency of flooding: Rare in April and May

Contrasting Inclusions

- Soils that are wet
- Soils that are loamy sand throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Nonirrigated cropland

Compaction hazard, low annual precipitation

Livestock grazing

Corrosivity

18—Farrell loam, 0 to 5 percent slopes

Composition

*Farrell and similar soils—*85 percent

*Contrasting inclusions—*15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a mantle of loess

Slope range: 0 to 5 percent

Elevation: 450 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 7 inches—brown loam
 7 to 16 inches—brown silt loam
 16 to 41 inches—brown silt loam
 41 to 48 inches—pale brown loamy coarse sand
 48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate over very rapid
Available water capacity: Moderately high
Effective rooting depth: 40 to 60 inches
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Slight

Contrasting Inclusions

- Roloff soils
- Rock outcrop

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland
 Low annual precipitation

Livestock grazing
 Corrosivity, permeability

19—Farrell loam, 5 to 10 percent slopes

Composition

Farrell and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces
Parent material: Glaciofluvial deposits with a mantle of loess
Slope range: 5 to 10 percent
Elevation: 450 to 1,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 7 inches—brown loam
 7 to 16 inches—brown silt loam
 16 to 41 inches—brown silt loam

41 to 48 inches—pale brown loamy coarse sand

48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Slight

Contrasting Inclusions

- Roloff soils
- Rock outcrop

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, slope

Livestock grazing

Corrosivity, permeability

20—Farrell loam, 10 to 15 percent slopes

Composition

Farrell and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a mantle of loess

Slope range: 10 to 15 percent

Elevation: 450 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 7 inches—brown loam

7 to 16 inches—brown silt loam

16 to 41 inches—brown silt loam

41 to 48 inches—pale brown loamy coarse sand

48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Rapid

Water erosion hazard: Moderate

Wind erosion hazard: Slight

Contrasting Inclusions

- Roloff soils
- Rock outcrop

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, slope

Livestock grazing

Corrosivity, permeability

21—Farrell loam, 15 to 30 percent slopes

Composition

Farrell and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a mantle of loess

Slope range: 15 to 30 percent

Elevation: 450 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 7 inches—brown loam

7 to 16 inches—brown silt loam

16 to 41 inches—brown silt loam

41 to 48 inches—pale brown loamy coarse sand

48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Slight

Contrasting Inclusions

- Roloff soils
- Rock outcrop

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Low annual precipitation, water erosion hazard, slope

Livestock grazing

Corrosivity, permeability, slope

22—Farrell loam, 30 to 60 percent slopes**Composition**

Farrell and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terrace escarpments

Parent material: Glaciofluvial deposits with a mantle of loess

Slope range: 30 to 60 percent

Elevation: 450 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 7 inches—brown loam

7 to 16 inches—brown silt loam

16 to 41 inches—brown silt loam

41 to 48 inches—pale brown loamy coarse sand

48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Slight

Contrasting Inclusions

- Roloff soils
- Rock outcrop

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, permeability, slope

23—Finley gravelly sandy loam, 5 to 10 percent slopes

Composition

Finley and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Outwash terraces

Parent material: Gravelly alluvium

Slope range: 5 to 10 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown gravelly sandy loam

6 to 17 inches—brown fine sandy loam

17 to 32 inches—pale brown very gravelly sandy loam

32 to 60 inches—brownish gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 20 to 40 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have less than 15 percent gravel throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

24—Finley very fine sandy loam, 0 to 2 percent slopes

Composition

Finley and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Outwash terraces

Parent material: Gravelly alluvium

Slope range: 0 to 2 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown very fine sandy loam

13 to 27 inches—light brownish gray very gravelly very fine sandy loam

27 to 60 inches—light brownish gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 20 to 40 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have less than 15 percent gravel throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

25—Finley very fine sandy loam, 2 to 5 percent slopes

Composition

*Finley and similar soils—*75 percent

*Contrasting inclusions—*25 percent

Setting

Position on landscape: Outwash terraces

Parent material: Gravelly alluvium

Slope range: 2 to 5 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown very fine sandy loam

13 to 27 inches—light brownish gray very gravelly very fine sandy loam

27 to 60 inches—light brownish gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 20 to 40 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have less than 15 percent gravel throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

26—Finley-Burbank-Starbuck complex, 0 to 10 percent slopes

Composition

Finley and similar soils—35 percent

Burbank and similar soils—25 percent

Starbuck and similar soils—25 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Finley—outwash terraces; Burbank—terraces; Starbuck—benches, hillsides, and ridgetops

Parent material: Finley—gravelly alluvium; Burbank—eolian sand over gravelly glacial flood deposits; Starbuck—loess over basalt

Slope range: 0 to 10 percent

Elevation: 500 to 800 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Finley

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown very fine sandy loam

13 to 27 inches—light brownish gray very gravelly very fine sandy loam

27 to 60 inches—light brownish gray extremely gravelly sand

Burbank

0 to 3 inches—brown loamy fine sand

3 to 24 inches—brown loamy fine sand

24 to 27 inches—grayish brown very gravelly loamy fine sand

27 to 60 inches—gray and dark gray extremely gravelly sand

Starbuck

0 to 9 inches—brown silt loam

9 to 17 inches—pale brown silt loam

17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Finley and Burbank—very deep (more than 60 inches); Starbuck—shallow (12 to 20 inches)

Drainage class: Finley and Starbuck—well drained; Burbank—excessively drained

Permeability: Finley—moderately rapid over very rapid; Burbank—rapid; Starbuck—moderate

Available water capacity: Finley—moderate; Burbank and Starbuck—low

Effective rooting depth: Finley—20 to 40 inches

Runoff: Finley and Starbuck—medium; Burbank—slow

Water erosion hazard: Finley, Burbank, and Starbuck—moderate

Wind erosion hazard: Finley and Burbank—severe; Starbuck—moderate

Contrasting Inclusions

- Soils that are calcareous to the surface
- Soils that are loamy fine sand throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Available water capacity of the Burbank and Starbuck soils, wind erosion hazard of the Finley and Burbank soils, depth to bedrock in the Starbuck soil, permeability of the Finley and Burbank soils, compaction hazard of the Finley and Starbuck soils

Livestock grazing

Corrosivity, depth to bedrock in the Starbuck soil, sandy surface layer of the Burbank soil, coarse texture of the subsoil and substratum and permeability of the Finley and Burbank soils

27—Finley-Neppel complex, 0 to 10 percent slopes***Composition***

Finley and similar soils—40 percent

Neppel and similar soils—35 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Finley—outwash terraces; Neppel—terraces

Parent material: Finley—gravelly alluvium; Neppel—alluvium over glacial outwash

Slope range: 0 to 10 percent

Elevation: 500 to 800 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Finley

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown very fine sandy loam

13 to 27 inches—light brownish gray very gravelly very fine sandy loam

27 to 60 inches—light brownish gray extremely gravelly sand

Neppel

0 to 7 inches—brown very fine sandy loam

7 to 25 inches—brown very fine sandy loam

25 to 30 inches—light brownish gray very fine sandy loam

30 to 37 inches—light gray gravelly very fine sandy loam

37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Finley—moderately rapid over very rapid; Neppel—moderate over very rapid

Available water capacity: Moderate

Effective rooting depth: Finley—20 to 40 inches; Neppel—24 to 40 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are calcareous to the surface
- Sagehill soils
- Warden soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to sand and gravel, permeability, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

28—Halaquepts, nearly level

Composition

Halaquepts and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Drainageways

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 0 to 2 percent

Elevation: 900 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Representative Profile

0 to 8 inches—light brownish gray silt loam

8 to 20 inches—pale brown silt loam

20 to 34 inches—pale brown silt loam

34 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Somewhat poorly drained and moderately well drained

Permeability: Moderate

Available water capacity: Very high

Effective rooting depth: 60 inches or more

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Depth to seasonal high water table (apparent)—6 to 36 inches in April through October

Contrasting Inclusions

- Sagehill soils
- Prosser soils
- Warden soils

Major Uses

Irrigated and nonirrigated pasture, livestock grazing

Major Management Limitations

Irrigated and nonirrigated pasture

Compaction hazard, wetness, alkalinity, salinity

Livestock grazing

Corrosivity, wetness, alkalinity, salinity

29—Hezel loamy fine sand, 0 to 15 percent slopes

Composition

*Hezel and similar soils—*85 percent

*Contrasting inclusions—*15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a mantle of eolian sand

Slope range: 0 to 15 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown loamy fine sand
 7 to 18 inches—brown loamy sand
 18 to 27 inches—light brownish gray fine sandy loam
 27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Permeability: Rapid over moderately slow
Available water capacity: High
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, slope

Livestock grazing

Corrosivity, sandy surface layer

30—Hezel loamy fine sand, 15 to 30 percent slopes***Composition***

Hezel and similar soils—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces
Parent material: Glaciofluvial deposits with a mantle of eolian sand
Slope range: 15 to 30 percent
Elevation: 400 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown loamy fine sand
 7 to 18 inches—brown loamy sand
 18 to 27 inches—light brownish gray fine sandy loam
 27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Permeability: Rapid over moderately slow
Available water capacity: High
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, water erosion hazard

Livestock grazing

Corrosivity, sandy surface layer, slope

31—Hezel loamy fine sand, 30 to 60 percent slopes

Composition

Hezel and similar soils—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces
Parent material: Glaciofluvial deposits with a mantle of eolian sand
Slope range: 30 to 60 percent
Elevation: 400 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown loamy fine sand
 7 to 18 inches—brown loamy sand
 18 to 27 inches—light brownish gray fine sandy loam
 27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Permeability: Rapid over moderately slow
Available water capacity: High
Runoff: Rapid
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils
- Sagehill soils

Major Uses

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, sandy surface layer, slope

32—Hezel loamy fine sand, cobbly substratum, 0 to 10 percent slopes

Composition

Hezel and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a mantle of eolian sand

Slope range: 0 to 10 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown loamy fine sand

7 to 33 inches—brown loamy sand

33 to 45 inches—pale brown very fine sandy loam

45 to 50 inches—pale brown extremely cobbly very fine sandy loam

50 to 60 inches—pale brown extremely cobbly fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Permeability: Rapid over moderate

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to rock fragments

Livestock grazing

Corrosivity, sandy surface layer, coarse texture of the subsoil and substratum

33—Kahlotus very fine sandy loam, 0 to 2 percent slopes

Composition

Kahlotus and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits mixed with a minor amount of loess in the upper part

Slope range: 0 to 2 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

34—Kahlotus very fine sandy loam, 2 to 5 percent slopes

Composition

Kahlotus and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits mixed with a minor amount of loess in the upper part

Slope range: 2 to 5 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

35—Kahlotus very fine sandy loam, 5 to 10 percent slopes

Composition

Kahlotus and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits with a minor amount of loess in the upper part

Slope range: 5 to 10 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity

36—Kahlotus very fine sandy loam, 10 to 15 percent slopes

Composition

Kahlotus and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits mixed with a minor amount of loess in the upper part

Slope range: 10 to 15 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity

37—Kahlotus very fine sandy loam, 15 to 30 percent slopes

Composition

Kahlotus and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Glaciofluvial deposits mixed with a minor amount of loess in the upper part

Slope range: 15 to 30 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam
 10 to 17 inches—brown silt loam
 17 to 37 inches—pale brown silt loam
 37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Rapid
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, water erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity, slope

38—Kahlotus very fine sandy loam, 30 to 40 percent slopes

Composition

Kahlotus and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces
Parent material: Glaciofluvial deposits mixed with a minor amount of loess in the upper part
Slope range: 30 to 40 percent
Elevation: 500 to 1,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown very fine sandy loam
 10 to 17 inches—brown silt loam
 17 to 37 inches—pale brown silt loam
 37 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzcal soils
- Soils that are sandy throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

39—Kahlotus-Kennewick complex, 15 to 30 percent slopes

Composition

Kahlotus and similar soils—45 percent

Kennewick and similar soils—45 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Kahlotus—terraces with north aspects; Kennewick—terraces with south aspects

Parent material: Kahlotus—glaciofluvial deposits with a minor amount of loess in the upper part; Kennewick—lacustrine deposits

Slope range: 15 to 30 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: About 9 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free season (32 degrees F): Kahlotus—150 to 180 days; Kennewick—180 to 200 days

Typical Profile

Kahlotus

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Kennewick

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Kahlotus—moderate; Kennewick—moderately slow

Available water capacity: Very high

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Kahlotus—severe; Kennewick—moderate

Contrasting Inclusions

- Soils that are sandy throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

40—Kahlotus-Kennewick complex, 30 to 60 percent slopes

Composition

Kahlotus and similar soils—45 percent

Kennewick and similar soils—45 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Kahlotus—terraces with north aspects; Kennewick—terraces with south aspects

Parent material: Kahlotus—glaciofluvial deposits mixed with a minor amount of loess in the upper part; Kennewick—lacustrine deposits

Slope range: 30 to 60 percent

Elevation: 500 to 1,500 feet

Mean annual precipitation: About 9 inches

Mean annual air temperature: 50 to 52 degrees F

Frost-free season (32 degrees F): Kahlotus—150 to 180 days; Kennewick—180 to 200 days

Typical Profile

Kahlotus

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Kennewick

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Kahlotus—moderate; Kennewick—moderately slow

Available water capacity: Very high

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Kahlotus—severe; Kennewick—moderate

Contrasting Inclusions

- Soils that are sandy throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

41—Kahlotus-Stratford complex, 0 to 15 percent slopes

Composition

Kahlotus and similar soils—60 percent

Stratford and similar soils—20 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Kahlotus—glaciofluvial deposits with a minor amount of loess in the upper part; Stratford—loess mixed with alluvium over glacial outwash

Slope range: 0 to 15 percent

Elevation: 600 to 900 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Kahlotus

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Stratford

0 to 9 inches—brown very fine sandy loam

9 to 19 inches—brown very fine sandy loam

19 to 31 inches—light brownish gray very fine sandy loam

31 to 35 inches—light brownish gray gravelly fine sandy loam

35 to 60 inches—gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Kahlotus—moderate; Stratford—moderate over very rapid

Available water capacity: Kahlotus—very high; Stratford—moderately high

Effective rooting depth: Stratford—20 to 36 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are calcareous throughout the profile

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, compaction hazard, depth to sand and gravel in the Stratford soil

Nonirrigated cropland

Low annual precipitation, slope, wind erosion hazard, compaction hazard, depth to sand and gravel in the Stratford soil

Livestock grazing

Corrosivity, permeability and coarse texture of the subsoil and substratum in the Stratford soil

42—Kahlotus-Stratford complex, 15 to 30 percent slopes

Composition

Kahlotus and similar soils—60 percent

Stratford and similar soils—20 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Kahlotus—glaciofluvial deposits with a minor amount of loess in the upper part; Stratford—loess mixed with alluvium over glacial outwash

Slope range: 15 to 30 percent

Elevation: 600 to 900 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Kahlotus

0 to 10 inches—brown very fine sandy loam

10 to 17 inches—brown silt loam

17 to 37 inches—pale brown silt loam

37 to 60 inches—light brownish gray silt loam

Stratford

0 to 9 inches—brown very fine sandy loam

9 to 19 inches—brown very fine sandy loam

19 to 31 inches—light brownish gray very fine sandy loam
 31 to 35 inches—light brownish gray gravelly fine sandy loam
 35 to 60 inches—gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Kahlotus—moderate; Stratford—moderate over very rapid
Available water capacity: Kahlotus—very high; Stratford—moderately high
Effective rooting depth: Stratford—20 to 36 inches
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are calcareous throughout the profile

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, water erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity, slope, permeability and coarse texture of the subsoil and substratum in the Stratford soil

43—Kennewick silt loam, 0 to 2 percent slopes

Composition

Kennewick and similar soils—95 percent
Contrasting inclusions—5 percent

Setting

Position on landscape: Terraces
Parent material: Lacustrine deposits
Slope range: 0 to 2 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—light gray silt loam
 8 to 23 inches—light gray silt loam
 23 to 35 inches—light gray very fine sandy loam
 35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained

Permeability: Moderately slow
Available water capacity: Very high
Runoff: Very slow
Water erosion hazard: Slight
Wind erosion hazard: Moderate

Contrasting Inclusions

- Warden soils
- Royal soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Livestock grazing

Corrosivity

44—Kennewick silt loam, 2 to 5 percent slopes

Composition

Kennewick and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces
Parent material: Lacustrine deposits
Slope range: 2 to 5 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—light gray silt loam
 8 to 23 inches—light gray silt loam
 23 to 35 inches—light gray very fine sandy loam
 35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very high
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Moderate

Contrasting Inclusions

- Warden soils
- Royal soils
- Soils that have bedrock at a depth of 40 inches or less

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard

Livestock grazing

Corrosivity

45—Kennewick silt loam, 5 to 10 percent slopes**Composition**

Kennewick and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits

Slope range: 5 to 10 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Warden soils
- Royal soils
- Soils that have bedrock at a depth of 40 inches or less

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard, slope

Livestock grazing

Corrosivity

46—Kennewick silt loam, 10 to 15 percent slopes

Composition

Kennewick and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits

Slope range: 10 to 15 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Warden soils
- Royal soils
- Soils that have bedrock at a depth of 40 inches or less

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Livestock grazing

Corrosivity

47—Kennewick silt loam, 15 to 35 percent slopes

Composition

Kennewick and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits

Slope range: 15 to 35 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Warden soils
- Royal soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Water erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity, slope

48—Kiona-Prosser-Starbuck complex, 30 to 60 percent slopes

Composition

Kiona and similar soils—35 percent

Prosser and similar soils—30 percent

Starbuck and similar soils—20 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Kiona—hillsides; Prosser—benches, hillsides, and ridgetops;

Starbuck—hillsides and ridgetops

Parent material: Kiona—mixed colluvium derived from basalt and loess; Prosser—

loess and glaciofluvial deposits over basalt; Starbuck—loess over basalt

Slope range: 30 to 60 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Kiona

0 to 6 inches—brown cobbly very fine sandy loam
 6 to 19 inches—brown cobbly very fine sandy loam
 19 to 60 inches—light brownish gray very cobbly sandy loam

Prosser

0 to 4 inches—brown silt loam
 4 to 22 inches—pale brown very fine sandy loam
 22 to 29 inches—pale brown silt loam
 29 to 33 inches—light gray silt loam
 33 inches—unweathered bedrock

Starbuck

0 to 9 inches—brown silt loam
 9 to 17 inches—pale brown silt loam
 17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Kiona—very deep (more than 60 inches); Prosser—moderately deep (20 to 40 inches); Starbuck—shallow (12 to 20 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Kiona and Prosser—moderate; Starbuck—low

Runoff: Kiona and Prosser—rapid; Starbuck—very rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Rock outcrop
- Rubble land
- Soils that are calcareous throughout the profile
- Soils that are fine sandy loam or coarser throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, depth to bedrock in the Prosser and Starbuck soils

49—Kiona-Rock outcrop complex, 30 to 120 percent slopes

Composition

Kiona and similar soils—70 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hillsides

Parent material: Mixed colluvium derived from basalt and loess

Slope range: Kiona—30 to 70 percent; Rock outcrop—70 to 120 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Kiona

Typical profile

0 to 6 inches—brown cobbly very fine sandy loam

6 to 19 inches—brown cobbly very fine sandy loam

19 to 60 inches—light brownish gray very cobbly sandy loam

Soil properties and qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Rubble land
- Soils that are calcareous throughout the profile
- Soils that are fine sandy loam or coarser throughout the profile
- Soils that have bedrock at a depth of 40 inches or less

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

50—Koehler fine sand, 0 to 15 percent slopes

Composition

*Koehler and similar soils—*75 percent

*Contrasting inclusions—*25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian sand over a duripan

Slope range: 0 to 15 percent

Elevation: 700 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown fine sand

4 to 20 inches—brown fine sand

20 to 35 inches—dark grayish brown fine sand

35 to 45 inches—indurated, carbonate- and silica-cemented duripan

45 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Somewhat excessively drained

Permeability: Rapid over very slow over slow

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have a duripan at a depth of less than 20 inches
- Soils that are fine sandy loam in the upper 20 to 40 inches
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, depth to the duripan, permeability, slope

Livestock grazing

Corrosivity, sandy surface layer, depth to the duripan

51—Koehler loamy fine sand, 0 to 10 percent slopes

Composition

Koehler and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian sand over a duripan

Slope range: 0 to 10 percent

Elevation: 700 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—very pale brown loamy fine sand

3 to 20 inches—very pale brown loamy fine sand

20 to 33 inches—very pale brown very gravelly fine sand

33 to 43 inches—indurated, carbonate- and silica-cemented duripan

43 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Somewhat excessively drained

Permeability: Rapid over very slow over slow

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches
- Soils that are fine sandy loam in the upper 20 to 40 inches
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, depth to the duripan, permeability

Livestock grazing

Corrosivity, sandy surface layer, depth to the duripan

52—Lickskillet-Bakeoven complex, 0 to 35 percent slopes

Composition

Lickskillet and similar soils—65 percent

Bakeoven and similar soils—30 percent

Contrasting inclusions—5 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Lickskillet—colluvium, loess, and residuum weathered from basalt;

Bakeoven—loess and residuum weathered from basalt

Slope range: 0 to 35 percent

Elevation: 550 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Lickskillet

0 to 6 inches—brown cobbly silt loam

6 to 13 inches—yellowish brown very gravelly loam

13 inches—unweathered bedrock

Bakeoven

0 to 3 inches—brown very cobbly silt loam

3 to 6 inches—brown very cobbly silt loam

6 to 8 inches—brown very gravelly loam

8 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Lickskillet—shallow (12 to 20 inches); Bakeoven—very shallow (4 to 10 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very low

Runoff: Slow to very rapid

Water erosion hazard: Severe

Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that have less than 35 percent rock fragments
- Soils that are 20 to 40 inches deep to bedrock
- Rock outcrop

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Depth to bedrock, surface rock fragments, slope

53—Magallon-Stratford-Farrell complex, 10 to 30 percent slopes

Composition

Magallon and similar soils—45 percent

Stratford and similar soils—20 percent

Farrell and similar soils—15 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Magallon—glacial outwash; Stratford—loess mixed with alluvium over glacial outwash; Farrell—glaciofluvial deposits with a mantle of loess

Slope range: 10 to 30 percent

Elevation: 600 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Magallon

0 to 7 inches—dark grayish brown sandy loam

7 to 15 inches—grayish brown sandy loam

15 to 22 inches—grayish brown loamy sand

22 to 60 inches—gray coarse sand

Stratford

0 to 9 inches—brown very fine sandy loam

9 to 19 inches—brown very fine sandy loam

19 to 31 inches—dark grayish brown very fine sandy loam

31 to 35 inches—dark grayish brown gravelly fine sandy loam

35 to 60 inches—multicolored extremely gravelly coarse sand

Farrell

0 to 7 inches—brown loam

7 to 16 inches—brown silt loam

16 to 41 inches—brown silt loam
 41 to 48 inches—pale brown loamy coarse sand
 48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Magallon—somewhat excessively drained; Stratford and Farrell—well drained
Permeability: Magallon—moderately rapid over rapid; Stratford and Farrell—moderate over very rapid
Available water capacity: Magallon—moderate; Stratford and Farrell—moderately high
Effective rooting depth: Magallon—14 to 25 inches; Stratford—20 to 36 inches; Farrell—40 to 60 inches
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Magallon and Stratford—severe; Farrell—moderate

Contrasting Inclusions

- Roloff soils
- Soils that are calcareous throughout the profile

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, wind erosion hazard, compaction hazard, slope, permeability, depth to sand and gravel

Livestock grazing

Corrosivity, slope, coarse texture of the subsoil and substratum

54—Magallon-Winchester-Farrell complex, 30 to 60 percent slopes

Composition

Magallon and similar soils—45 percent
Winchester and similar soils—35 percent
Farrell and similar soils—10 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Magallon and Winchester—terrace escarpments; Farrell—terraces
Parent material: Magallon—glacial outwash; Winchester—sandy alluvium and eolian sand; Farrell—glaciofluvial deposits with a mantle of loess
Slope range: Magallon and Winchester—30 to 60 percent; Farrell—30 to 40 percent
Elevation: 600 to 1,500 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Magallon

0 to 7 inches—dark grayish brown sandy loam

7 to 15 inches—grayish brown sandy loam

15 to 22 inches—grayish brown loamy sand

22 to 60 inches—gray coarse sand

Winchester

0 to 15 inches—brown loamy coarse sand

15 to 60 inches—gray coarse sand

Farrell

0 to 7 inches—brown loam

7 to 16 inches—brown silt loam

16 to 41 inches—brown silt loam

41 to 48 inches—pale brown loamy coarse sand

48 to 60 inches—multicolored coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Magallon—somewhat excessively drained; Winchester—excessively drained; Farrell—well drained

Permeability: Magallon—moderately rapid over rapid; Winchester—rapid; Farrell—moderate over very rapid

Available water capacity: Magallon—moderate; Winchester—low; Farrell—moderately high

Effective rooting depth: Magallon—14 to 25 inches; Farrell—40 to 60 inches

Runoff: Magallon and Farrell—medium; Winchester—very slow

Water erosion hazard: Severe

Wind erosion hazard: Magallon and Winchester—severe; Farrell—moderate

Contrasting Inclusions

- Roloff soils
- Soils that are calcareous throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, coarse texture of the subsoil and substratum

55—Malaga cobbly sandy loam, 0 to 15 percent slopes

Composition

Malaga and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Glacial outwash

Slope range: 0 to 15 percent

Elevation: 700 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown cobbly sandy loam
 6 to 11 inches—pale brown gravelly sandy loam
 11 to 18 inches—pale brown very gravelly sandy loam
 18 to 22 inches—dark gray extremely gravelly loamy sand
 22 to 60 inches—gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid over rapid
Available water capacity: Low
Effective rooting depth: 14 to 25 inches
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are sandy

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Surface rock fragments, coarse texture of the subsoil and substratum

56—Nansene-Ritzville complex, 45 to 65 percent slopes

Composition

*Nansene and similar soils—*55 percent
*Ritzville and similar soils—*30 percent
*Contrasting inclusions—*15 percent

Setting

Position on landscape: Nansene—hillsides with north aspects; Ritzville—hillsides with south aspects
Parent material: Loess
Slope range: 45 to 65 percent
Elevation: 1,100 to 1,600 feet
Mean annual precipitation: About 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Nansene

0 to 22 inches—dark grayish brown silt loam
 22 to 54 inches—dark grayish brown and brown silt loam
 54 to 60 inches—brown silt loam

Ritzville

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Nansene—slight; Ritzville—moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches
- Wacota soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

57—Neppel fine sandy loam, 0 to 2 percent slopes***Composition***

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 0 to 2 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—yellowish brown fine sandy loam

4 to 22 inches—yellowish brown fine sandy loam

22 to 28 inches—pale brown gravelly fine sandy loam

28 to 60 inches—light gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderate

Effective rooting depth: 24 to 40 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, depth to sand and gravel, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

58—Neppel fine sandy loam, 2 to 5 percent slopes

Composition

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 2 to 5 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—yellowish brown fine sandy loam

4 to 22 inches—yellowish brown fine sandy loam

22 to 28 inches—pale brown gravelly fine sandy loam

28 to 60 inches—light gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderate

Effective rooting depth: 24 to 40 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, depth to sand and gravel, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

59—Neppel fine sandy loam, 5 to 10 percent slopes

Composition

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 5 to 10 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—yellowish brown fine sandy loam

4 to 22 inches—yellowish brown fine sandy loam

22 to 28 inches—pale brown gravelly fine sandy loam

28 to 60 inches—light gray extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderate

Effective rooting depth: 24 to 40 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, depth to sand and gravel, compaction hazard, slope

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

60—Neppel very fine sandy loam, 0 to 2 percent slopes

Composition

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 0 to 2 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam

7 to 25 inches—brown very fine sandy loam

25 to 30 inches—light brownish gray very fine sandy loam

30 to 37 inches—light gray gravelly very fine sandy loam

37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 24 to 40 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Prosser soils
- Taunton soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

61—Neppel very fine sandy loam, 2 to 5 percent slopes

Composition

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 2 to 5 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam

7 to 25 inches—brown very fine sandy loam

25 to 30 inches—light brownish gray very fine sandy loam

30 to 37 inches—light gray gravelly very fine sandy loam

37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 24 to 40 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

62—Neppel very fine sandy loam, 5 to 10 percent slopes

Composition

Neppel and similar soils—80 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over glacial outwash

Slope range: 5 to 10 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam
 7 to 25 inches—brown very fine sandy loam
 25 to 30 inches—light brownish gray very fine sandy loam
 30 to 37 inches—light gray gravelly very fine sandy loam
 37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate over very rapid
Available water capacity: Moderately high
Effective rooting depth: 24 to 40 inches
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, compaction hazard, depth to sand and gravel, slope

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

63—Neppel very fine sandy loam, 10 to 15 percent slopes

Composition

Neppel and similar soils—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces
Parent material: Alluvium over glacial outwash
Slope range: 10 to 15 percent
Elevation: 400 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam
 7 to 25 inches—brown very fine sandy loam

25 to 30 inches—light brownish gray very fine sandy loam
 30 to 37 inches—light gray gravelly very fine sandy loam
 37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate over very rapid
Available water capacity: Moderately high
Effective rooting depth: 24 to 40 inches
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, permeability, compaction hazard, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

64—Neppel very fine sandy loam, 15 to 30 percent slopes

Composition

Neppel and similar soils—80 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Terraces
Parent material: Alluvium over glacial outwash
Slope range: 15 to 30 percent
Elevation: 400 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam
 7 to 25 inches—brown very fine sandy loam
 25 to 30 inches—light brownish gray very fine sandy loam
 30 to 37 inches—light gray gravelly very fine sandy loam
 37 to 60 inches—pale brown extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained

Permeability: Moderate over very rapid
Available water capacity: Moderately high
Effective rooting depth: 24 to 40 inches
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, water erosion hazard, permeability, compaction hazard, slope, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, slope, coarse texture of the subsoil and substratum

65—Neppel-Finley complex, 15 to 50 percent slopes

Composition

Neppel and similar soils—40 percent
Finley and similar soils—35 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Neppel—terraces; Finley—outwash terraces
Parent material: Neppel—alluvium over glacial outwash; Finley—gravelly alluvium
Slope range: Neppel—15 to 40 percent; Finley—15 to 50 percent
Elevation: 500 to 800 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Neppel

0 to 7 inches—brown very fine sandy loam
 7 to 25 inches—brown very fine sandy loam
 25 to 30 inches—light brownish gray very fine sandy loam
 30 to 37 inches—light gray gravelly very fine sandy loam
 37 to 60 inches—pale brown extremely gravelly sand

Finley

0 to 4 inches—brown very fine sandy loam
 4 to 13 inches—brown very fine sandy loam
 13 to 27 inches—light brownish gray very gravelly very fine sandy loam
 27 to 60 inches—light brownish gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained

Permeability: Neppel—moderate over very rapid; Finley—moderately rapid over very rapid

Available water capacity: Neppel—moderately high; Finley—moderate

Effective rooting depth: Neppel—24 to 40 inches; Finley—20 to 40 inches

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are calcareous to the surface
- Soils that have a duripan at a depth of 20 to 40 inches
- Hezel soils
- Sagehill soils
- Warden soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Water erosion hazard, wind erosion hazard, compaction hazard, slope, permeability, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, slope, coarse texture of the subsoil and substratum

66—Novark silt loam, 2 to 5 percent slopes

Composition

Novark and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over glacial outwash or alluvium

Slope range: 2 to 5 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown silt loam

5 to 17 inches—pale brown silt loam

17 to 21 inches—pale brown very fine sandy loam

21 to 60 inches—very dark gray and white fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 20 to 40 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Sagehill soils
- Neppel soils
- Warden soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, compaction hazard, depth to sand and gravel

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

67—Ottmar silt loam, 0 to 2 percent slopes

Composition

Ottmar and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone or shale

Slope range: 0 to 2 percent

Elevation: 750 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown silt loam

7 to 17 inches—yellowish brown silt loam

17 to 34 inches—pale brown silt loam

34 to 48 inches—white silty clay loam

48 to 60 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock at a depth of 10 to 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Permeability, compaction hazard

Livestock grazing

Corrosivity

68—Ottmar silt loam, 2 to 5 percent slopes**Composition**

Ottmar and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone or shale

Slope range: 2 to 5 percent

Elevation: 750 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown silt loam

7 to 17 inches—yellowish brown silt loam

17 to 34 inches—pale brown silt loam

34 to 48 inches—white silty clay loam

48 to 60 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock at a depth of 10 to 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Permeability, compaction hazard

Livestock grazing

Corrosivity

69—Ottmar silt loam, 5 to 10 percent slopes***Composition***

Ottmar and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone or shale

Slope range: 5 to 10 percent

Elevation: 750 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown silt loam

7 to 17 inches—yellowish brown silt loam

17 to 34 inches—pale brown silt loam

34 to 48 inches—white silty clay loam

48 to 60 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: High

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock at a depth of 10 to 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Permeability, compaction hazard, slope

Livestock grazing

Corrosivity

70—Ottmar silt loam, very deep, 0 to 2 percent slopes***Composition***

Ottmar and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Loess

Slope range: 0 to 2 percent

Elevation: 350 to 500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—light brownish gray silt loam

4 to 16 inches—light yellowish brown silt loam

16 to 46 inches—pale yellow silt loam

46 to 60 inches—stratified, pale yellow silty clay loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are loam throughout the profile
- Novark soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, compaction hazard

Livestock grazing

Corrosivity

71—Ottmar silt loam, very deep, 2 to 5 percent slopes

Composition

Ottmar and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Loess

Slope range: 2 to 5 percent

Elevation: 350 to 500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—light brownish gray silt loam

4 to 16 inches—light yellowish brown silt loam

16 to 46 inches—pale yellow silt loam

46 to 60 inches—stratified, pale yellow silty clay loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are loam throughout the profile
- Novark soils

Major Uses

Irrigated cropland (fig. 3), livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, compaction hazard

Livestock grazing

Corrosivity

72—Ottmar silt loam, very deep, 5 to 10 percent slopes

Composition

Ottmar and similar soils—90 percent

Contrasting inclusions—10 percent



Figure 3.—Irrigated alfalfa hay in an area of Ottmar silt loam, very deep, 2 to 5 percent slopes.

Setting

Position on landscape: Terraces

Parent material: Loess

Slope range: 5 to 10 percent

Elevation: 350 to 500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—light brownish gray silt loam

4 to 16 inches—light yellowish brown silt loam

16 to 46 inches—pale yellow silt loam

46 to 60 inches—stratified pale yellow silty clay loam and silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are loam throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, compaction hazard, slope

Livestock grazing

Corrosivity

73—Ottmar clay loam, very deep, 0 to 5 percent slopes

Composition

*Ottmar and similar soils—*90 percent

*Contrasting inclusions—*10 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium

Slope range: 0 to 5 percent

Elevation: 350 to 500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 10 inches—pale brown clay loam
10 to 25 inches—light gray silty clay loam
25 to 47 inches—pale brown clay loam
47 to 60 inches—light gray clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Very high
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that are loam throughout the profile
- Soils that are silt loam throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Permeability

Livestock grazing

Corrosivity

74—Ottmar clay loam, very deep, 5 to 10 percent slopes***Composition***

Ottmar and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces
Parent material: Alluvium
Slope range: 5 to 10 percent
Elevation: 350 to 500 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 10 inches—pale brown clay loam
10 to 25 inches—light gray silty clay loam
25 to 47 inches—pale brown clay loam
47 to 60 inches—light gray clay loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that are loam throughout the profile
- Soils that are silt loam throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, slope

Livestock grazing

Corrosivity

75—Ottmar-Schlomer complex, 5 to 15 percent slopes

Composition

Ottmar and similar soils—40 percent

Schlomer and similar soils—35 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone and shale

Slope range: 5 to 15 percent

Elevation: 750 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Ottmar

0 to 7 inches—brown silt loam

7 to 17 inches—yellowish brown silt loam

17 to 34 inches—pale brown silt loam

34 to 48 inches—white silty clay loam

48 to 60 inches—weathered bedrock

Schlomer

0 to 4 inches—brown silt loam

4 to 16 inches—brown silt loam

16 to 22 inches—pale brown silt loam

22 to 34 inches—pale yellow silty clay loam

34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Ottmar—deep (40 to 60 inches); Schlomer—moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Ottmar—high; Schlomer—moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are wet
- Quincy soils
- Soils that have bedrock at a depth of 20 inches or less
- Soils that are calcareous to the surface
- Soils that are loamy fine sand above the bedrock

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, slope, compaction hazard, depth to bedrock in the Schlomer soil

Livestock grazing

Corrosivity

76—Pits

Composition: 100 percent pits

Description of areas: Open excavations

Major use: Source of rock, sand, and gravel

77—Prosser fine sandy loam, 0 to 2 percent slopes

Composition

*Prosser and similar soils—*90 percent

*Contrasting inclusions—*10 percent

Setting

Position on landscape: Benches and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 0 to 2 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Starbuck soils
- Soils that have bedrock at a depth of 40 inches or more
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

78—Prosser fine sandy loam, 2 to 5 percent slopes

Composition

Prosser and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 2 to 5 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Starbuck soils
- Soils that have bedrock at a depth of 40 inches or more
- Soils that are calcareous to the surface
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

79—Prosser fine sandy loam, 5 to 10 percent slopes

Composition

Prosser and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 5 to 10 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Starbuck soils
- Soils that have bedrock at a depth of 40 inches or more

- Soils that are calcareous to the surface
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to bedrock, slope, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

80—Prosser silt loam, 0 to 2 percent slopes

Composition

Prosser and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Benches and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 0 to 2 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 22 inches—pale brown very fine sandy loam

22 to 29 inches—pale brown silt loam

29 to 33 inches—light gray silt loam

33 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Starbuck soils
- Soils that have bedrock at a depth of 40 inches or more
- Soils that are wet
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

81—Prosser silt loam, 2 to 5 percent slopes

Composition

Prosser and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 2 to 5 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 22 inches—pale brown very fine sandy loam

22 to 29 inches—pale brown silt loam

29 to 33 inches—light gray silt loam

33 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Starbuck soils
- Soils that have bedrock at a depth of 40 inches or more
- Soils that are wet
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

82—Prosser silt loam, 5 to 10 percent slopes

Composition

Prosser and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 5 to 10 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 22 inches—pale brown very fine sandy loam

22 to 29 inches—pale brown silt loam

29 to 33 inches—light gray silt loam

33 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Starbuck soils
- Soils that are wet
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, slope, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

83—Prosser-Starbuck-Rock outcrop complex, 2 to 15 percent slopes

Composition

Prosser and similar soils—35 percent

Starbuck and similar soils—30 percent

Rock outcrop—15 percent
Contrasting inclusions—20 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops
Parent material: Prosser—loess and glaciofluvial deposits over basalt; Starbuck—loess over basalt
Slope range: 2 to 15 percent
Elevation: 550 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Prosser

0 to 4 inches—brown silt loam
 4 to 22 inches—pale brown very fine sandy loam
 22 to 29 inches—pale brown silt loam
 29 to 33 inches—light gray silt loam
 33 inches—unweathered bedrock

Starbuck

0 to 9 inches—brown silt loam
 9 to 17 inches—pale brown silt loam
 17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Prosser—moderately deep (20 to 40 inches); Starbuck—shallow (12 to 20 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Prosser—moderate; Starbuck—low
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that have bedrock at a depth of 40 inches or more
- Soils that are calcareous throughout the profile
- Soils that are less than 12 inches deep to bedrock
- Soils that are wet

Major Uses

Irrigated cropland, livestock grazing (fig. 4)

Major Management Limitations

Irrigated cropland

Available water capacity of the Starbuck soil, depth to bedrock, slope, compaction hazard, areas of Rock outcrop



Figure 4.—Rangeland in an area of Prosser-Starbuck-Rock outcrop complex, 2 to 15 percent slopes.

Livestock grazing

Corrosivity, depth to bedrock

84—Prosser-Starbuck-Rock outcrop complex, droughty, 2 to 15 percent slopes

Composition

Prosser and similar soils—40 percent

Starbuck and similar soils—30 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Prosser—loess and glaciofluvial deposits over basalt; Starbuck—loess over basalt

Slope range: 2 to 15 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Prosser

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Starbuck

0 to 10 inches—grayish brown and brown fine sandy loam

10 to 17 inches—brown very fine sandy loam

17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Prosser—moderately deep (20 to 40 inches); Starbuck—shallow (12 to 20 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Prosser—moderate; Starbuck—low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that have bedrock at a depth of 40 inches or more
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity of the Starbuck soil, wind erosion hazard, slope, depth to bedrock, compaction hazard, areas of Rock outcrop

Livestock grazing

Corrosivity, depth to bedrock

85—Quincy fine sand, 2 to 15 percent slopes

Composition

Quincy and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 2 to 15 percent

Elevation: 700 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Hezel soils
- Dune land

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture

86—Quincy fine sand, 15 to 30 percent slopes

Composition

Quincy and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 15 to 30 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Hezel soils
- Sagehill soils
- Dune land

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, permeability, sandy surface layer, coarse texture

87—Quincy fine sand, 30 to 55 percent slopes***Composition***

Quincy and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 30 to 55 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Hezel soils
- Dune land

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, slope, permeability, sandy surface layer, coarse texture

88—Quincy fine sand, moist, 0 to 15 percent slopes***Composition***

Quincy and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 0 to 15 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 9 inches—grayish brown fine sand
 9 to 60 inches—grayish brown fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low
Runoff: Slow
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very fine sandy loam throughout the profile

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, sandy surface layer, permeability, coarse texture

89—Quincy loamy fine sand, 0 to 15 percent slopes***Composition***

Quincy and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces
Parent material: Mixed sand
Slope range: 0 to 15 percent
Elevation: 350 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown loamy fine sand
 4 to 50 inches—light brownish gray loamy fine sand
 50 to 60 inches—light brownish gray fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Moderate
Runoff: Slow
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture

90—Quincy loamy fine sand, 15 to 30 percent slopes

Composition

Quincy and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 15 to 30 percent

Elevation: 350 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill and Royal soils

Major Uses

Irrigated orchards, livestock grazing

Major Management Limitations

Irrigated orchards

Wind erosion hazard, permeability, slope, water erosion hazard

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture

91—Quincy loamy fine sand, 30 to 55 percent slopes***Composition***

Quincy and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand

Slope range: 30 to 55 percent

Elevation: 350 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill and Royal soils

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, slope, sandy surface layer, permeability, coarse texture

92—Quincy loamy fine sand, loamy substratum, 0 to 10 percent slopes***Composition***

Quincy and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand over glaciolacustrine deposits

Slope range: 0 to 10 percent
Elevation: 350 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—grayish brown loamy fine sand
3 to 52 inches—grayish brown loamy fine sand
52 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid over moderate
Available water capacity: Moderately high
Effective rooting depth: 40 to 60 inches
Runoff: Very slow
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very fine sandy loam in the upper 52 inches
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard

Livestock grazing

Corrosivity, sandy surface layer, coarse texture

93—Quincy loamy fine sand, loamy substratum, 10 to 15 percent slopes

Composition

Quincy and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces
Parent material: Mixed sand over glaciolacustrine deposits
Slope range: 10 to 15 percent
Elevation: 350 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—grayish brown loamy fine sand

3 to 52 inches—grayish brown loamy fine sand

52 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid over moderate

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Slow

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very fine sandy loam in the upper 52 inches
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope

Livestock grazing

Corrosivity, sandy surface layer, coarse texture

94—Quincy loamy fine sand, loamy substratum, 15 to 25 percent slopes

Composition

Quincy and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Dunes and terraces

Parent material: Mixed sand over glaciolacustrine deposits

Slope range: 15 to 25 percent

Elevation: 350 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 3 inches—grayish brown loamy fine sand

3 to 52 inches—grayish brown loamy fine sand

52 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid over moderate

Available water capacity: Moderately high

Effective rooting depth: 40 to 60 inches

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are very fine sandy loam in the upper 52 inches
- Soils that are calcareous throughout the profile

Major Uses

Irrigated orchards, livestock grazing

Major Management Limitations

Irrigated orchards

Wind erosion hazard, slope, water erosion hazard

Livestock grazing

Corrosivity, slope, sandy surface layer, coarse texture

95—Quincy complex, 0 to 15 percent slopes

Composition

*Quincy, cemented substratum, and similar soils—*55 percent

*Quincy, very gravelly substratum, and similar soils—*40 percent

*Contrasting inclusions—*5 percent

Setting

Position on landscape: Terraces

Parent material: Quincy, cemented substratum—mixed sand over a duripan;

Quincy, very gravelly substratum—mixed sand over very gravelly alluvium

Slope range: 0 to 15 percent

Elevation: 350 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy, cemented substratum

0 to 4 inches—brown loamy fine sand

4 to 21 inches—brown fine sand

21 to 45 inches—pale brown fine sand

45 to 55 inches—indurated, carbonate- and silica-cemented duripan

55 to 60 inches—stratified, indurated very gravelly sandy loam

Quincy, very gravelly substratum

0 to 7 inches—brown loamy fine sand

7 to 26 inches—brown loamy fine sand

26 to 45 inches—brown loamy fine sand

45 to 60 inches—pale brown very gravelly loamy fine sand

Soil Properties and Qualities

Depth class: Quincy, cemented substratum—deep (40 to 60 inches); Quincy, very gravelly substratum—very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Quincy, cemented substratum—rapid over very slow over slow;

Quincy, gravelly substratum—rapid over very rapid

Available water capacity: Moderate

Effective rooting depth: 40 to 60 inches

Runoff: Slow

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Dune land
- Sagehill soils
- Soils that are very fine sandy loam below a depth of 25 inches
- Soils that do not have a very gravelly or cemented substratum

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture

96—Quincy-Dune land complex, 5 to 40 percent slopes

Composition

Quincy and similar soils—55 percent

Dune land—35 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Quincy—dunes and terraces; Dune land—dunes

Parent material: Quincy—mixed sand; Dune land—eolian sand

Slope range: 5 to 40 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Dune land

0 to 60 inches—fine sand

Soil Properties and Qualities

Quincy

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, sandy surface layer, permeability

97—Quincy-Hezel complex, 0 to 15 percent slopes

Composition

Quincy and similar soils—50 percent

Hezel and similar soils—25 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Quincy—convex areas of dunes and terraces; Hezel—concave areas of terraces

Parent material: Quincy—mixed sand; Hezel—glaciofluvial deposits with a mantle of mixed sand

Slope range: 0 to 15 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Hezel

0 to 7 inches—grayish brown loamy fine sand

7 to 18 inches—brown loamy sand

18 to 27 inches—light brownish gray fine sandy loam

27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Quincy—excessively drained; Hezel—somewhat excessively drained

Permeability: Quincy—rapid; Hezel—rapid over moderately slow

Available water capacity: Quincy—moderate; Hezel—high

Runoff: Quincy—slow; Hezel—medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Warden soils
- Kennewick soils
- Sagehill soils
- Soils that have extremely gravelly coarse sand at a depth of 20 inches or more

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, slope

Livestock grazing

Corrosivity, sandy surface layer, permeability and coarse texture of the Quincy soil

98—Quincy-Hezel complex, 15 to 30 percent slopes

Composition

Quincy and similar soils—65 percent

Hezel and similar soils—30 percent

Contrasting inclusions—5 percent

Setting

Position on landscape: Quincy—convex areas of dunes and terraces; Hezel—concave areas of terraces

Parent material: Quincy—mixed sand; Hezel—glaciofluvial deposits with a mantle of eolian sand

Slope range: 15 to 30 percent

Elevation: 400 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Hezel

0 to 7 inches—grayish brown loamy fine sand

7 to 18 inches—brown loamy sand

18 to 27 inches—light brownish gray fine sandy loam

27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Quincy—excessively drained; Hezel—somewhat excessively drained

Permeability: Quincy—rapid; Hezel—rapid over moderately slow

Available water capacity: Quincy—moderate; Hezel—high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Warden soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, sandy surface layer, permeability and coarse texture of the Quincy soil

99—Quincy-Hezel complex, fine sand, 15 to 30 percent slopes

Composition

Quincy and similar soils—65 percent

Hezel and similar soils—30 percent

Contrasting inclusions—5 percent

Setting

Position on landscape: Quincy—convex areas of dunes and terraces; Hezel—concave areas of terraces

Parent material: Quincy—mixed sand; Hezel—glaciofluvial deposits with a mantle of eolian sand

Slope range: 15 to 30 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Hezel

0 to 9 inches—brown fine sand

9 to 22 inches—brown fine sand

22 to 28 inches—grayish brown loamy fine sand

28 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Quincy—excessively drained; Hezel—somewhat excessively drained

Permeability: Quincy—rapid; Hezel—rapid over moderate

Available water capacity: Quincy—low; Hezel—high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Warden soils

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, slope, sandy surface layer, permeability and coarse texture of the Quincy soil

100—Quincy-Hezel-Warden complex, 0 to 15 percent slopes**Composition**

Quincy and similar soils—45 percent

Hezel and similar soils—30 percent

Warden and similar soils—15 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Quincy—convex areas of dunes and terraces; Hezel—concave areas of terraces; Warden—bottoms of terraces

Parent material: Quincy—mixed sand; Hezel—glaciofluvial deposits with a mantle of eolian sand; Warden—lacustrine deposits with a thin mantle of loess

Slope range: Quincy and Hezel—0 to 15 percent; Warden—0 to 5 percent

Elevation: 500 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile**Quincy**

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Hezel

0 to 7 inches—grayish brown loamy fine sand

7 to 18 inches—brown loamy sand

18 to 27 inches—light brownish gray fine sandy loam

27 to 60 inches—light gray, stratified silt loam to fine sandy loam

Warden

0 to 6 inches—brown fine sandy loam

6 to 22 inches—pale brown very fine sandy loam

22 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Quincy—excessively drained; Hezel—somewhat excessively drained; Warden—well drained

Permeability: Quincy—rapid; Hezel—rapid over moderately slow; Warden—moderate

Available water capacity: Quincy—moderate; Hezel—high; Warden—very high

Runoff: Quincy—slow; Hezel—medium; Warden—very slow

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Sagehill soils
- Soils that have extremely gravelly coarse sand at a depth of 20 inches or more

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, permeability of the Quincy soil

Livestock grazing

Corrosivity, sandy surface layer, permeability and coarse texture of the Quincy soil

101—Quincy-Quinton-Rock outcrop complex, 0 to 30 percent slopes

Composition

Quincy and similar soils—40 percent

Quinton and similar soils—25 percent

Rock outcrop—15 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Quincy—dunes and terraces; Quinton—benches

Parent material: Quincy—mixed sand; Quinton—mixed sand over basalt

Slope range: 0 to 30 percent

Elevation: 500 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Quinton

0 to 7 inches—brown loamy fine sand

7 to 25 inches—brown loamy fine sand

25 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Quincy—very deep (more than 60 inches); Quinton—moderately deep (20 to 40 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Quincy—moderate; Quinton—low

Runoff: Quincy—slow; Quinton—medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Sagehill soils
- Soils that have bedrock at a depth of less than 20 inches

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, sandy surface layer, permeability, slope, coarse texture

102—Quincy-Timmerman complex, 0 to 15 percent slopes

Composition

Quincy and similar soils—60 percent

Timmerman and similar soils—35 percent

Contrasting inclusions—5 percent

Setting

Position on landscape: Quincy—dunes and terraces; Timmerman—terraces

Parent material: Quincy—mixed sand; Timmerman—glacial outwash and alluvium mixed with loess in the upper part

Slope range: 0 to 15 percent

Elevation: 350 to 600 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 4 inches—grayish brown loamy fine sand

4 to 50 inches—light brownish gray loamy fine sand

50 to 60 inches—light brownish gray fine sand

Timmerman

0 to 5 inches—grayish brown fine sandy loam

5 to 19 inches—grayish brown sandy loam

19 to 28 inches—light brownish gray loamy coarse sand

28 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Quincy—excessively drained; Timmerman—somewhat excessively drained

Permeability: Quincy—rapid; Timmerman—moderately rapid over rapid

Available water capacity: Moderate

Effective rooting depth: Timmerman—13 to 30 inches

Runoff: Quincy—slow; Timmerman—medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils
- Soils that have more than 35 percent rock fragments at a depth of 20 inches or more

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, permeability, slope

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum, sandy surface layer of the Quincy soil

103—Quincy-Wanser complex, 0 to 15 percent slopes

Composition

Quincy and similar soils—45 percent

Wanser and similar soils—25 percent

Contrasting inclusions—30 percent

Setting

Position on landscape: Quincy—dunes; Wanser—depressions and drainageways

Parent material: Mixed sand

Slope range: Quincy—2 to 15 percent; Wanser—0 to 5 percent

Elevation: 650 to 900 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Quincy

0 to 11 inches—grayish brown fine sand

11 to 60 inches—grayish brown fine sand

Wanser

0 to 4 inches—very dark gray fine sand

4 to 60 inches—very dark gray fine sand

Soil Properties and Qualities

Depth class: Very deep (60 inches or more)

Drainage class: Quincy—excessively drained; Wanser—poorly drained

Permeability: Rapid

Available water capacity: Quincy—low; Wanser—moderate

Runoff: Slow

Water erosion hazard: Quincy—moderate; Wanser—slight

Wind erosion hazard: Severe

Depth to seasonal high water table (apparent): Wanser—6 to 12 inches in May through November

Frequency of flooding: Wanser—occasional in January through May

Contrasting Inclusions

- Sagehill soils
- Hezel soils
- Soils that have sand and gravel below a depth of 20 inches
- Warden soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture of the subsoil and substratum, wetness of the Wanser soil

104—Rinquin loamy fine sand, 0 to 10 percent slopes

Composition

Rinquin and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Outwash and eolian sand over weathered bedrock

Slope range: 0 to 10 percent

Elevation: 800 to 1,100 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—grayish brown loamy fine sand

7 to 21 inches—brown loamy fine sand

21 to 26 inches—light brownish gray loamy fine sand

26 to 36 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Somewhat excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Wiehl soils
- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Available water capacity, wind erosion hazard, depth to bedrock, permeability

Livestock grazing

Corrosivity, depth to bedrock, sandy surface layer

105—Ritzcal-Ritzville complex, 15 to 30 percent slopes**Composition**

Ritzcal and similar soils—45 percent

Ritzville and similar soils—45 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Ritzcal—hillsides with south aspects; Ritzville—hillsides with north aspects

Parent material: Loess

Slope range: 15 to 30 percent

Elevation: 900 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile**Ritzcal**

0 to 4 inches—brown silt loam

4 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Ritzville

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils
- Soils that have lacustrine deposits at a depth of 20 to 40 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Water erosion hazard, compaction hazard

Nonirrigated cropland

Low annual precipitation, water erosion hazard, compaction hazard

Livestock grazing

Corrosivity, slope

106—Ritzcal-Ritzville complex, 30 to 60 percent slopes**Composition**

Ritzcal and similar soils—45 percent

Ritzville and similar soils—45 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Ritzcal—hillsides with south aspects; Ritzville—hillsides with north aspects

Parent material: Loess

Slope range: 30 to 60 percent

Elevation: 900 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile**Ritzcal**

0 to 4 inches—brown silt loam

4 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Ritzville

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils
- Soils that have lacustrine deposits at a depth of 20 to 40 inches

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, slope

107—Ritzville silt loam, 0 to 2 percent slopes**Composition**

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 0 to 2 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

108—Ritzville silt loam, 2 to 5 percent slopes

Composition

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 2 to 5 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

109—Ritzville silt loam, 5 to 10 percent slopes

Composition

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 5 to 10 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, compaction hazard, slope

Livestock grazing

Corrosivity

110—Ritzville silt loam, 10 to 15 percent slopes**Composition**

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 10 to 15 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, compaction hazard, slope

Livestock grazing

Corrosivity

111—Ritzville silt loam, 15 to 30 percent slopes

Composition

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 15 to 30 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils
- Nansene soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Water erosion hazard, compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

112—Ritzville silt loam, 30 to 40 percent slopes***Composition***

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 30 to 40 percent

Elevation: 1,000 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—brown silt loam

12 to 41 inches—brown silt loam

41 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Rapid

Water erosion hazard: Severe
Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils
- Nansene soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

113—Ritzville silt loam, stratified substratum, 2 to 5 percent slopes

Composition

Ritzville and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills
Parent material: Loess over alluvium
Slope range: 2 to 5 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam
 10 to 34 inches—pale brown silt loam
 34 to 44 inches—pale brown silt loam
 44 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

114—Ritzville silt loam, stratified substratum, 5 to 10 percent slopes**Composition**

Ritzville and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess over alluvium

Slope range: 5 to 10 percent

Elevation: 800 to 1,000 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam

10 to 34 inches—pale brown silt loam

34 to 44 inches—pale brown silt loam

44 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity

115—Ritzville silt loam, stratified substratum, 10 to 15 percent slopes

Composition

Ritzville and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills
Parent material: Loess over alluvium
Slope range: 10 to 15 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam
10 to 34 inches—pale brown silt loam
34 to 44 inches—pale brown silt loam
44 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, compaction hazard, slope

Livestock grazing

Corrosivity

116—Ritzville silt loam, stratified substratum, 15 to 30 percent slopes

Composition

Ritzville and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills
Parent material: Loess over alluvium
Slope range: 15 to 30 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam
10 to 34 inches—pale brown silt loam
34 to 44 inches—pale brown silt loam
44 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Rapid
Water erosion hazard: Severe
Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Low annual precipitation, water erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity, slope

117—Ritzville silt loam, stratified substratum, 30 to 60 percent slopes**Composition**

*Ritzville and similar soils—*85 percent
*Contrasting inclusions—*15 percent

Setting

Position on landscape: Hills
Parent material: Loess over alluvium
Slope range: 30 to 60 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam
 10 to 34 inches—pale brown silt loam
 34 to 44 inches—pale brown silt loam
 44 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Very rapid
Water erosion hazard: Severe
Wind erosion hazard: Moderate

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing
 Corrosivity, slope

118—Ritzville-Nansene complex, 30 to 45 percent slopes***Composition***

Ritzville and similar soils—55 percent
Nansene and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Ritzville—hillsides with south aspects; Nansene—hillsides with north aspects
Parent material: Loess
Slope range: 30 to 45 percent
Elevation: 800 to 1,000 feet
Mean annual precipitation: About 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile**Ritzville**

0 to 12 inches—brown silt loam
 12 to 41 inches—brown silt loam
 41 to 60 inches—pale brown silt loam

Nansene

0 to 22 inches—dark grayish brown silt loam
 22 to 54 inches—dark grayish brown and brown silt loam
 54 to 60 inches—brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Ritzville—moderate; Nansene—slight

Contrasting Inclusions

- Roloff and Willis soils
- Wacota soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

119—Riverwash

Composition

Riverwash—100 percent

Setting

Position on landscape: Flood plains

Parent material: Gravel, cobbles, and sandy alluvium

Slope range: 0 to 4 percent

Elevation: 300 to 1,100 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 49 to 53 degrees F

Frost-free season (32 degrees F): 150 to 200 days

Description of Riverwash

Riverwash consists of sandy or gravelly deposits that are frequently flooded by rivers.

It is commonly extremely gravelly sand throughout.

Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Very poorly drained

Runoff: Very slow

Water erosion hazard: Severe

Wind erosion hazard: Slight

Depth to seasonal high water table (apparent): At the surface to a depth of 24 inches below the surface in January through December

Frequency of flooding: Frequent in October through July

Major Use

Wildlife habitat

120—Roloff silt loam, 0 to 15 percent slopes

Composition

Roloff and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 0 to 15 percent

Elevation: 450 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 15 inches—brown silt loam

15 to 26 inches—brown silt loam

26 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Lickskillet soils
- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

121—Roloff silt loam, 15 to 30 percent slopes

Composition

Roloff and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 15 to 30 percent

Elevation: 450 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 15 inches—brown silt loam

15 to 26 inches—brown silt loam

26 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Lickskillet soils
- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock, slope

122—Roloff silt loam, 30 to 60 percent slopes

Composition

*Roloff and similar soils—*90 percent

*Contrasting inclusions—*10 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess and glaciofluvial deposits over basalt

Slope range: 30 to 60 percent

Elevation: 900 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 15 inches—brown silt loam

15 to 26 inches—brown silt loam
 26 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate
Runoff: Rapid
Water erosion hazard: Severe
Wind erosion hazard: Moderate

Contrasting Inclusions

- Lickskillet soils
- Ritzville soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing
 Corrosivity, slope, depth to bedrock

123—Roloff-Lickskillet-Rock outcrop complex, 0 to 15 percent slopes

Composition

Roloff and similar soils—40 percent
Lickskillet and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops
Parent material: Roloff—loess and glaciofluvial deposits over basalt; Lickskillet—loess and residuum weathered from basalt
Slope range: 0 to 15 percent
Elevation: 450 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

Roloff

0 to 4 inches—brown silt loam
 4 to 15 inches—brown silt loam
 15 to 26 inches—brown silt loam
 26 inches—unweathered bedrock

Lickskillet

0 to 6 inches—brown cobbly silt loam
 6 to 13 inches—yellowish brown very gravelly loam
 13 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Roloff—moderately deep (20 to 40 inches); Lickskillet—shallow (12 to 20 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Roloff—moderate; Lickskillet—very low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Roloff—moderate; Lickskillet—slight

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that have a duripan underlain by bedrock

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, depth to bedrock, surface rock fragments on the Lickskillet soil, areas of Rock outcrop

124—Roloff-Rock outcrop complex, 30 to 70 percent slopes

Composition

Roloff and similar soils—60 percent

Rock outcrop—20 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess, and glaciofluvial deposits over basalt

Slope range: 30 to 70 percent

Elevation: 450 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Rock fragments on surface: Kind—stones; percentage of surface covered—0.5 percent

Roloff

Typical profile

0 to 4 inches—brown silt loam

4 to 15 inches—brown silt loam

15 to 26 inches—brown silt loam

26 inches—unweathered bedrock

Soil properties and qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate
Available water capacity: Moderate
Runoff: Very rapid
Water erosion hazard: Severe
Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Lickskillet soils
- Soils that are more than 60 inches deep to bedrock
- Soils that have a duripan underlain by bedrock

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, water erosion hazard, depth to bedrock, areas of Rock outcrop

125—Roloff-Rock outcrop-Rubble land complex, 30 to 70 percent slopes

Composition

Roloff and similar soils—50 percent
Rock outcrop—25 percent
Rubble land—15 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops
Parent material: Loess, and glaciofluvial deposits over basalt
Slope range: 30 to 70 percent
Elevation: 900 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days
Rock fragments on surface: Kind—stones; percentage of surface covered—0.5 percent

Roloff

Typical profile

0 to 4 inches—brown silt loam
 4 to 15 inches—brown silt loam
 15 to 26 inches—brown silt loam
 26 inches—unweathered bedrock

Soil properties and qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Moderate

Runoff: Very rapid
Water erosion hazard: Severe
Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Rubble Land

Description of areas: Deposits of cobbles and stones at the base of the areas of Rock outcrop

Contrasting Inclusions

- Lickskillet soils
- Soils that are more than 60 inches deep to bedrock
- Soils that have more than 35 percent rock fragments throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, depth to bedrock, water erosion hazard, areas of Rock outcrop and Rubble land

126—Royal loamy fine sand, 0 to 10 percent slopes

Composition

Royal and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces
Parent material: Sandy alluvium
Slope range: 0 to 10 percent
Elevation: 400 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown loamy fine sand
 6 to 19 inches—brown fine sandy loam
 19 to 60 inches—stratified, brown and light brownish gray very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: Moderately high
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard

Livestock grazing

Corrosivity, sandy surface layer, permeability

127—Royal loamy fine sand, 10 to 30 percent slopes

Composition

Royal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium

Slope range: 10 to 30 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown loamy fine sand

6 to 19 inches—brown fine sandy loam

19 to 60 inches—stratified, brown and light brownish gray very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, sandy surface layer, permeability

128—Royal fine sandy loam, 0 to 2 percent slopes***Composition***

Royal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium

Slope range: 0 to 2 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown fine sandy loam

5 to 15 inches—pale brown fine sandy loam

15 to 60 inches—stratified, light gray and light brownish gray very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderately high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability

129—Royal fine sandy loam, 2 to 5 percent slopes***Composition***

Royal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium

Slope range: 2 to 5 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown fine sandy loam

5 to 15 inches—pale brown fine sandy loam

15 to 60 inches—stratified, light gray and light brownish gray very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderately high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability

130—Royal fine sandy loam, 5 to 10 percent slopes

Composition

Royal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium

Slope range: 5 to 10 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—light brownish gray fine sandy loam

5 to 15 inches—pale brown fine sandy loam

15 to 60 inches—stratified, light gray and light brownish gray very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, permeability

131—Royal very fine sandy loam, 2 to 5 percent slopes

Composition

Royal and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium and wind-modified glaciofluvial deposits

Slope range: 2 to 5 percent

Elevation: 750 to 1,250 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—dark grayish brown very fine sandy loam

5 to 24 inches—dark grayish brown very fine sandy loam

24 to 60 inches—stratified, brown and grayish brown very fine sandy loam to fine sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderately high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Warden soils
- Soils that are loam throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability

132—Royal-Timmerman complex, 15 to 30 percent slopes

Composition

Royal and similar soils—50 percent

Timmerman and similar soils—35 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Royal—sandy alluvium; Timmerman—glacial outwash and alluvium mixed with loess in the upper part

Slope range: 15 to 30 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Royal

0 to 5 inches—grayish brown fine sandy loam

5 to 15 inches—pale brown fine sandy loam

15 to 60 inches—stratified, light gray and light brownish gray very fine sandy loam to fine sand

Timmerman

0 to 5 inches—grayish brown fine sandy loam

5 to 19 inches—grayish brown sandy loam

19 to 28 inches—light brownish gray loamy coarse sand

28 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Royal—well drained; Timmerman—somewhat excessively drained

Permeability: Royal—moderately rapid; Timmerman—moderately rapid over rapid

Available water capacity: Royal—moderately high; Timmerman—moderate

Effective rooting depth: Timmerman—13 to 30 inches

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill soils
- Winchester soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, permeability

133—Sagehill very fine sandy loam, 0 to 2 percent slopes

Composition

Sagehill and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over lacustrine deposits

Slope range: 0 to 2 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 50 inches—pale brown silt loam

50 to 56 inches—very pale brown silt loam

56 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

134—Sagehill very fine sandy loam, 2 to 5 percent slopes

Composition

Sagehill and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over lacustrine deposits

Slope range: 2 to 5 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 50 inches—pale brown silt loam

50 to 56 inches—very pale brown silt loam

56 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

135—Sagehill very fine sandy loam, 5 to 10 percent slopes

Composition

Sagehill and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over lacustrine deposits

Slope range: 5 to 10 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 50 inches—pale brown silt loam

50 to 56 inches—very pale brown silt loam

56 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity

136—Sagehill very fine sandy loam, 10 to 15 percent slopes

Composition

Sagehill and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over lacustrine deposits

Slope range: 10 to 15 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 50 inches—pale brown silt loam

50 to 56 inches—very pale brown silt loam

56 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity

137—Sagehill very fine sandy loam, 15 to 30 percent slopes

Composition

*Sagehill and similar soils—*75 percent

*Contrasting inclusions—*25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over lacustrine deposits

Slope range: 15 to 30 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam
 6 to 25 inches—brown very fine sandy loam
 25 to 50 inches—pale brown silt loam
 50 to 56 inches—very pale brown silt loam
 56 to 60 inches—light gray very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand

Major Uses

Irrigated orchards, livestock grazing

Major Management Limitations**Irrigated orchards**

Wind erosion hazard, water erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity, slope

138—Sagehill very fine sandy loam, cemented substratum, 0 to 2 percent slopes

Composition

Sagehill and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces
Parent material: Eolian deposits over lacustrine deposits
Slope range: 0 to 2 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam
 4 to 13 inches—brown very fine sandy loam
 13 to 27 inches—pale brown very fine sandy loam
 27 to 45 inches—pale brown silt loam
 45 inches—indurated, carbonate- and silica-cemented duripan

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Permeability: Moderate over very slow
Available water capacity: High
Runoff: Very slow
Water erosion hazard: Slight
Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 40 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

139—Sagehill very fine sandy loam, cemented substratum, 2 to 5 percent slopes

Composition

Sagehill and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces
Parent material: Eolian deposits over lacustrine deposits
Slope range: 2 to 5 percent
Elevation: 500 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam
 4 to 13 inches—brown very fine sandy loam
 13 to 27 inches—pale brown very fine sandy loam
 27 to 45 inches—pale brown silt loam
 45 inches—indurated, carbonate- and silica-cemented duripan

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Permeability: Moderate over very slow

Available water capacity: High

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils
- Soils that are stratified with layers of loamy fine sand
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 40 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

140—Sagehill very fine sandy loam, gravelly substratum, 0 to 2 percent slopes

Composition

Sagehill and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over glacial outwash

Slope range: 0 to 2 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 21 inches—pale brown very fine sandy loam

21 to 47 inches—light brownish gray very fine sandy loam

47 to 60 inches—black very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: High

Effective rooting depth: 40 to 60 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

141—Sagehill very fine sandy loam, gravelly substratum, 2 to 5 percent slopes

Composition

Sagehill and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits over glacial outwash

Slope range: 2 to 5 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 10 inches—brown very fine sandy loam

10 to 21 inches—pale brown very fine sandy loam

21 to 47 inches—light brownish gray very fine sandy loam

47 to 60 inches—black very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: High

Effective rooting depth: 40 to 60 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

142—Sagehill-Kennewick complex, 0 to 2 percent slopes

Composition

Sagehill and similar soils—45 percent

Kennewick and similar soils—30 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Sagehill—eolian deposits over glacial outwash; Kennewick—lacustrine deposits over glacial outwash

Slope range: 0 to 2 percent

Elevation: 850 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Sagehill

0 to 10 inches—brown very fine sandy loam

10 to 21 inches—pale brown very fine sandy loam

21 to 47 inches—light brownish gray very fine sandy loam

47 to 60 inches—black very gravelly coarse sand

Kennewick

0 to 7 inches—brown very fine sandy loam

7 to 20 inches—brown very fine sandy loam

20 to 28 inches—pale brown silt loam

28 to 52 inches—pale brown silt loam

52 to 60 inches—white and black extremely gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: High

Effective rooting depth: 40 to 60 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Quincy soils
- Taunton soils
- Prosser soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

143—Sagehill-Kennewick-Shano complex, 15 to 60 percent slopes

Composition

Sagehill and similar soils—35 percent

Kennewick and similar soils—30 percent

Shano and similar soils—25 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Sagehill and Kennewick—terraces; Shano—hills

Parent material: Sagehill—eolian deposits over lacustrine deposits; Kennewick—lacustrine deposits; Shano—loess

Slope range: 15 to 60 percent

Elevation: 850 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Sagehill

0 to 6 inches—brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 50 inches—pale brown silt loam

50 to 56 inches—very pale brown silt loam

56 to 60 inches—light gray very fine sandy loam

Kennewick

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Shano

0 to 6 inches—pale brown silt loam

6 to 42 inches—pale brown silt loam

42 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Sagehill and Shano—moderate; Kennewick—moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Sagehill—severe; Kennewick and Shano—moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches
- Quincy soils
- Soils that are sand between depths of 20 and 40 inches

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

144—Sagemoor very fine sandy loam, 0 to 2 percent slopes

Composition

Sagemoor and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Loess over lacustrine deposits

Slope range: 0 to 2 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 9 inches—brown silt loam

9 to 18 inches—pale brown silt loam

18 to 60 inches—light brownish gray and light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

145—Sagemoor very fine sandy loam, 2 to 5 percent slopes

Composition

Sagemoor and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Loess over lacustrine deposits

Slope range: 2 to 5 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 9 inches—brown silt loam

9 to 18 inches—pale brown silt loam

18 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

146—Sagemoor very fine sandy loam, 5 to 10 percent slopes

Composition

Sagemoor and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Loess over lacustrine deposits

Slope range: 5 to 10 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown very fine sandy loam

4 to 9 inches—brown silt loam

9 to 18 inches—pale brown silt loam

18 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, slope

Livestock grazing

Corrosivity

147—Schlomer silt loam, 0 to 2 percent slopes

Composition

Schlomer and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone and shale

Slope range: 0 to 2 percent

Elevation: 750 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 16 inches—brown silt loam

16 to 22 inches—pale brown silt loam

22 to 34 inches—pale yellow silty clay loam

34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderately high

Effective rooting depth: 20 to 40 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Quincy soils
- Soils that have siltstone at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, permeability, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

148—Schlomer silt loam, 2 to 5 percent slopes

Composition

*Schlomer and similar soils—*75 percent

*Contrasting inclusions—*25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone and shale

Slope range: 2 to 5 percent

Elevation: 750 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam
 4 to 16 inches—brown silt loam
 16 to 22 inches—pale brown silt loam
 22 to 34 inches—pale yellow silty clay loam
 34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Moderate

Contrasting Inclusions

- Quincy soils
- Soils that have siltstone at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, permeability, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

149—Schlomer silt loam, 5 to 10 percent slopes

Composition

Schlomer and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces
Parent material: Loess over siltstone and shale
Slope range: 5 to 10 percent
Elevation: 750 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam
 4 to 16 inches—brown silt loam
 16 to 22 inches—pale brown silt loam

22 to 34 inches—pale yellow silty clay loam
 34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Quincy soils
- Soils that have siltstone at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, permeability, compaction hazard, slope

Livestock grazing

Corrosivity, depth to bedrock

150—Schlomer silt loam, 10 to 15 percent slopes

Composition

Schlomer and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces
Parent material: Loess over siltstone and shale
Slope range: 10 to 15 percent
Elevation: 750 to 1,000 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam
 4 to 16 inches—brown silt loam
 16 to 22 inches—pale brown silt loam
 22 to 34 inches—pale yellow silty clay loam
 34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Quincy soils
- Soils that have siltstone at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Depth to bedrock, permeability, compaction hazard, slope

Livestock grazing

Corrosivity, depth to bedrock

151—Schlomer silt loam, 15 to 25 percent slopes

Composition

Schlomer and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess over siltstone and shale

Slope range: 15 to 25 percent

Elevation: 750 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 4 inches—brown silt loam

4 to 16 inches—brown silt loam

16 to 22 inches—pale brown silt loam

22 to 34 inches—pale yellow silty clay loam

34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderately slow

Available water capacity: Moderately high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Quincy soils
- Soils that have siltstone at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Water erosion hazard, slope, depth to bedrock, permeability, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock, slope

152—Shano silt loam, 0 to 2 percent slopes**Composition**

Shano and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 0 to 2 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

153—Shano silt loam, 2 to 5 percent slopes

Composition

Shano and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 2 to 5 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

154—Shano silt loam, 5 to 10 percent slopes

Composition

Shano and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 5 to 10 percent
Elevation: 650 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam
 6 to 28 inches—pale brown silt loam
 28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity

155—Shano silt loam, 10 to 15 percent slopes

Composition

*Shano and similar soils—*85 percent
*Contrasting inclusions—*15 percent

Setting

Position on landscape: Hills
Parent material: Loess
Slope range: 10 to 15 percent
Elevation: 650 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam
 6 to 28 inches—pale brown silt loam
 28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity

156—Shano silt loam, 15 to 25 percent slopes***Composition***

*Shano and similar soils—*75 percent

*Contrasting inclusions—*25 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 15 to 25 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Water erosion hazard, compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

157—Shano silt loam, 25 to 40 percent slopes

Composition

Shano and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 25 to 40 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

158—Shano silt loam, stratified substratum, 0 to 2 percent slopes

Composition

Shano and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills
Parent material: Loess over glaciofluvial deposits
Slope range: 0 to 2 percent
Elevation: 650 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 13 inches—brown silt loam
13 to 45 inches—yellowish brown silt loam
45 to 50 inches—pale brown very fine sandy loam
50 to 60 inches—very pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Very slow
Water erosion hazard: Slight
Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

159—Shano silt loam, stratified substratum, 2 to 5 percent slopes

Composition

Shano and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess over glaciofluvial deposits

Slope range: 2 to 5 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 13 inches—brown silt loam

13 to 45 inches—yellowish brown silt loam

45 to 50 inches—pale brown very fine sandy loam

50 to 60 inches—very pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity

160—Shano silt loam, stratified substratum, 5 to 10 percent slopes

Composition

*Shano and similar soils—*85 percent

*Contrasting inclusions—*15 percent

Setting

Position on landscape: Hills

Parent material: Loess over glaciofluvial deposits

Slope range: 5 to 10 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 13 inches—brown silt loam
13 to 45 inches—yellowish brown silt loam
45 to 50 inches—pale brown very fine sandy loam
50 to 60 inches—very pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity

161—Shano silt loam, stratified substratum, 10 to 15 percent slopes

Composition

Shano and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Hills
Parent material: Loess over glaciofluvial deposits
Slope range: 10 to 15 percent
Elevation: 650 to 1,200 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 13 inches—brown silt loam
13 to 45 inches—yellowish brown silt loam

45 to 50 inches—pale brown very fine sandy loam

50 to 60 inches—very pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Nonirrigated cropland

Low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity

162—Shano silt loam, stratified substratum, 15 to 30 percent slopes

Composition

Shano and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Hills

Parent material: Loess over glaciofluvial deposits

Slope range: 15 to 30 percent

Elevation: 650 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 13 inches—brown silt loam

13 to 45 inches—yellowish brown silt loam

45 to 50 inches—pale brown very fine sandy loam

50 to 60 inches—very pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

163—Shano-Kennewick complex, 15 to 30 percent slopes

Composition

Shano and similar soils—40 percent

Kennewick and similar soils—35 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Shano—hills; Kennewick—terraces

Parent material: Shano—loess; Kennewick—lacustrine deposits

Slope range: 15 to 30 percent

Elevation: 850 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Shano

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Kennewick

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Shano—moderate; Kennewick—moderately slow

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are fine sandy loam throughout the profile
- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

164—Shano-Kennewick complex, 30 to 60 percent slopes

Composition

Shano and similar soils—40 percent

Kennewick and similar soils—40 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Shano—hills; Kennewick—terraces

Parent material: Shano—loess; Kennewick—lacustrine deposits

Slope range: 30 to 60 percent

Elevation: 850 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Shano

0 to 6 inches—pale brown silt loam

6 to 28 inches—pale brown silt loam

28 to 60 inches—pale brown silt loam

Kennewick

0 to 8 inches—light gray silt loam

8 to 23 inches—light gray silt loam

23 to 35 inches—light gray very fine sandy loam

35 to 60 inches—light gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Shano—moderate; Kennewick—moderately slow

Available water capacity: Very high

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are fine sandy loam throughout the profile

- Soils that have bedrock or a duripan at a depth of 20 to 60 inches

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope

165—Starbuck fine sandy loam, 0 to 15 percent slopes

Composition

Starbuck and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess over basalt

Slope range: 0 to 15 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 10 inches—grayish brown and brown fine sandy loam

10 to 17 inches—brown very fine sandy loam

17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Shallow (12 to 20 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are more than 40 inches deep to bedrock
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, slope, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

166—Starbuck silt loam, 0 to 15 percent slopes

Composition

Starbuck and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Loess over basalt

Slope range: 0 to 15 percent

Elevation: 450 to 1,500 feet

Mean annual precipitation: 6 to 12 inches

Mean annual air temperature: 49 to 53 degrees F

Frost-free season (32 degrees F): 150 to 200 days

Typical Profile

0 to 9 inches—brown silt loam

9 to 17 inches—pale brown silt loam

17 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Shallow (12 to 20 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are more than 40 inches deep to bedrock
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, slope, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

167—Starbuck-Prosser complex, 0 to 15 percent slopes

Composition

Starbuck and similar soils—50 percent

Prosser and similar soils—40 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Starbuck—loess over basalt; Prosser—loess and glaciofluvial deposits over basalt

Slope range: 0 to 15 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Starbuck

0 to 10 inches—grayish brown and brown fine sandy loam

10 to 17 inches—brown very fine sandy loam

17 inches—unweathered bedrock

Prosser

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Starbuck—shallow (12 to 20 inches); Prosser—moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Starbuck—low; Prosser—moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that are more than 40 inches deep to bedrock
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity of the Starbuck soil, wind erosion hazard, slope, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

168—Starbuck-Prosser-Finley complex, 0 to 25 percent slopes

Composition

Starbuck and similar soils—40 percent

Prosser and similar soils—25 percent

Finley and similar soils—15 percent

Contrasting inclusions—20 percent

Setting

Position on landscape: Starbuck and Prosser—benches and ridgetops; Finley—outwash terraces

Parent material: Starbuck—loess over basalt; Prosser—loess and glaciofluvial deposits over basalt; Finley—gravelly alluvium

Slope range: Starbuck and Prosser—0 to 15 percent; Finley—0 to 25 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

Starbuck

0 to 4 inches—brown very fine sandy loam

4 to 14 inches—brown very fine sandy loam

14 inches—unweathered bedrock

Prosser

0 to 7 inches—brown very fine sandy loam

7 to 10 inches—brown very fine sandy loam

10 to 26 inches—yellowish brown very fine sandy loam

26 to 30 inches—pale brown very fine sandy loam

30 inches—unweathered bedrock

Finley

0 to 4 inches—brown very fine sandy loam

4 to 13 inches—brown very fine sandy loam

13 to 27 inches—pale brown very gravelly very fine sandy loam

27 to 60 inches—light brownish gray extremely gravelly sand

Soil Properties and Qualities

Depth class: Starbuck—shallow (12 to 20 inches); Prosser—moderately deep (20 to 40 inches); Finley—very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Starbuck and Prosser—moderate; Finley—moderately rapid over very rapid

Available water capacity: Starbuck—low; Prosser and Finley—moderate

Effective rooting depth: Finley—20 to 40 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 12 inches
- Soils that are calcareous throughout the profile
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity of the Starbuck soil, wind erosion hazard, slope, depth to bedrock in the Starbuck and Prosser soils; compaction hazard, permeability of the Finley soil

Livestock grazing

Corrosivity, depth to bedrock in the Starbuck and Prosser soils, permeability and coarse texture of the substratum in the Finley soil

169—Starbuck-Prosser-Rock outcrop complex, 15 to 30 percent slopes***Composition***

Starbuck and similar soils—40 percent

Prosser and similar soils—30 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Starbuck—loess over basalt; Prosser—loess and glaciofluvial deposits over basalt

Slope range: 15 to 30 percent

Elevation: 450 to 1,200 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile**Starbuck**

0 to 9 inches—brown silt loam

9 to 17 inches—pale brown silt loam

17 inches—unweathered bedrock

Prosser

0 to 4 inches—brown silt loam

4 to 22 inches—pale brown very fine sandy loam

22 to 29 inches—pale brown silt loam

29 to 33 inches—light gray silt loam

33 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Starbuck—shallow (12 to 20 inches); Prosser—moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Starbuck—low; Prosser—moderate

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that are less than 12 inches or more than 40 inches deep to bedrock
- Soils that are calcareous throughout the profile

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, depth to bedrock, slope, areas of Rock outcrop

170—Starbuck-Prosser-Rock outcrop complex, droughty, 15 to 30 percent slopes

Composition

Starbuck and similar soils—40 percent

Prosser and similar soils—30 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Benches, hillsides, and ridgetops

Parent material: Starbuck—loess over basalt; Prosser—loess and glaciofluvial deposits over basalt

Slope range: 15 to 30 percent

Elevation: 600 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile**Starbuck**

0 to 10 inches—grayish brown and brown fine sandy loam

10 to 17 inches—brown very fine sandy loam

17 inches—unweathered bedrock

Prosser

0 to 4 inches—grayish brown fine sandy loam

4 to 15 inches—grayish brown very fine sandy loam

15 to 27 inches—grayish brown very fine sandy loam

27 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Starbuck—shallow (12 to 20 inches); Prosser—moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Starbuck—low; Prosser—moderate

Runoff: Starbuck—rapid; Prosser—medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that are more than 40 inches deep to bedrock
- Kiona soils

Major Use

Livestock grazing

Major Management Limitations**Livestock grazing**

Corrosivity, depth to bedrock, slope, areas of Rock outcrop

171—Starbuck-Roloff-Rock outcrop complex, 15 to 30 percent slopes**Composition**

Starbuck and similar soils—40 percent

Roloff and similar soils—30 percent

Rock outcrop—15 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hillsides and ridgetops

Parent material: Starbuck—loess over basalt; Roloff—loess and glaciofluvial deposits over basalt

Slope range: 15 to 30 percent

Elevation: 900 to 1,500 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile**Starbuck**

0 to 9 inches—brown silt loam

9 to 17 inches—pale brown silt loam

17 inches—unweathered bedrock

Roloff

0 to 4 inches—brown silt loam

4 to 15 inches—brown silt loam

15 to 26 inches—brown silt loam

26 inches—unweathered bedrock

Soil Properties and Qualities

Depth class: Starbuck—shallow (12 to 20 inches); Roloff—moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Starbuck—low; Roloff—moderate

Runoff: Starbuck—very rapid; Roloff—rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Rock Outcrop

Kind of rock: Basalt

Contrasting Inclusions

- Soils that are less than 12 inches or more than 40 inches deep to bedrock

- Soils that are calcareous throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, depth to bedrock, slope, areas of Rock outcrop

172—Stratford silt loam, 0 to 5 percent slopes

Composition

Stratford and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over glacial outwash

Slope range: 0 to 5 percent

Elevation: 500 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—brown silt loam

8 to 15 inches—brown silt loam

15 to 20 inches—pale brown silt loam

20 to 28 inches—yellowish brown very gravelly sandy loam

28 to 60 inches—gray very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 20 to 36 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous throughout the profile
- Kahlotus soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Permeability, compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

173—Stratford silt loam, 5 to 10 percent slopes***Composition***

Stratford and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over glacial outwash

Slope range: 5 to 10 percent

Elevation: 500 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—brown silt loam

8 to 15 inches—brown silt loam

15 to 20 inches—pale brown silt loam

20 to 28 inches—yellowish brown very gravelly sandy loam

28 to 60 inches—gray very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 20 to 36 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous throughout the profile
- Kahlotus soils

Major Uses

Irrigated and nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Slope, permeability, compaction hazard

Nonirrigated cropland

Low annual precipitation, compaction hazard, slope

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

174—Stratford silt loam, 15 to 30 percent slopes

Composition

Stratford and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over glacial outwash

Slope range: 15 to 30 percent

Elevation: 500 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—brown silt loam

8 to 15 inches—brown silt loam

15 to 23 inches—pale brown silt loam

23 to 28 inches—yellowish brown very gravelly sandy loam

28 to 60 inches—gray very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderately high

Effective rooting depth: 20 to 36 inches

Runoff: Rapid

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous throughout the profile
- Kahlotus soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope, permeability, coarse texture of the substratum

175—Stratford cobbly silt loam, 0 to 15 percent slopes

Composition

Stratford and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over glacial outwash

Slope range: 0 to 15 percent

Elevation: 500 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—grayish brown cobbly silt loam

12 to 28 inches—brown and yellowish brown gravelly loam

28 to 60 inches—gray very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate over very rapid

Available water capacity: Moderate

Effective rooting depth: 20 to 36 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that are calcareous throughout the profile
- Kahlotus soils
- Soils that have less than 15 percent cobbles in the surface layer

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Surface rock fragments, low annual precipitation, slope, compaction hazard

Livestock grazing

Corrosivity, permeability, coarse texture of the substratum

176—Stratford very stony silt loam, 0 to 15 percent slopes**Composition**

Stratford and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Loess mixed with alluvium over glacial outwash

Slope range: 0 to 15 percent

Elevation: 500 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 12 inches—grayish brown very stony silt loam
 12 to 20 inches—brown and yellowish brown gravelly loam
 20 to 60 inches—gray very gravelly coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate over very rapid
Available water capacity: Moderate
Effective rooting depth: 20 to 36 inches
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that are calcareous throughout the profile
- Rock outcrop

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, surface rock fragments, permeability, coarse texture of the substratum

177—Tauncal very fine sandy loam, 2 to 5 percent slopes

Composition

Tauncal and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces and hills
Parent material: Loess and glaciofluvial deposits over an indurated duripan
Slope range: 2 to 5 percent
Elevation: 700 to 1,150 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam
 7 to 13 inches—pale brown very fine sandy loam
 13 to 27 inches—light brownish gray silt loam
 27 to 36 inches—pale brown silt loam
 36 to 46 inches—indurated, carbonate- and silica-cemented duripan
 46 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Taunton soils
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

178—Tauncal very fine sandy loam, 5 to 10 percent slopes

Composition

Tauncal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces and hills

Parent material: Loess and glaciofluvial deposits over an indurated duripan

Slope range: 5 to 10 percent

Elevation: 700 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam

7 to 13 inches—pale brown very fine sandy loam

13 to 27 inches—light brownish gray silt loam

27 to 36 inches—pale brown silt loam

36 to 46 inches—indurated, carbonate- and silica-cemented duripan

46 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Taunton soils
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

179—Tauncal very fine sandy loam, 10 to 15 percent slopes

Composition

Tauncal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces and hills

Parent material: Loess and glaciofluvial deposits over an indurated duripan

Slope range: 10 to 15 percent

Elevation: 700 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam

7 to 13 inches—pale brown very fine sandy loam

13 to 27 inches—light brownish gray silt loam

27 to 36 inches—pale brown silt loam

36 to 46 inches—indurated, carbonate- and silica-cemented duripan

46 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Taunton soils
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

180—Tauncal very fine sandy loam, 15 to 30 percent slopes

Composition

Tauncal and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces and hills

Parent material: Loess and glaciofluvial deposits over an indurated duripan

Slope range: 15 to 30 percent

Elevation: 700 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 7 inches—brown very fine sandy loam

7 to 13 inches—pale brown very fine sandy loam

13 to 27 inches—light brownish gray silt loam

27 to 36 inches—pale brown silt loam

36 to 46 inches—indurated, carbonate- and silica-cemented duripan

46 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches
- Taunton soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, water erosion hazard, slope, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan, slope

181—Taunton very fine sandy loam, 0 to 2 percent slopes

Composition

Taunton and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over an indurated duripan

Slope range: 0 to 2 percent

Elevation: 650 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 34 inches—light brownish gray very fine sandy loam

34 to 38 inches—light brownish gray gravelly fine sandy loam

38 to 48 inches—indurated, carbonate- and silica-cemented duripan

48 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Taunton soils

- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

182—Taunton very fine sandy loam, 2 to 5 percent slopes

Composition

Taunton and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Alluvium over an indurated duripan

Slope range: 2 to 5 percent

Elevation: 650 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown very fine sandy loam

6 to 25 inches—brown very fine sandy loam

25 to 34 inches—light brownish gray very fine sandy loam

34 to 38 inches—light brownish gray gravelly fine sandy loam

38 to 48 inches—indurated, carbonate- and silica-cemented duripan

48 to 60 inches—stratified, indurated material with lenses of very gravelly sandy loam

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Koehler soils
- Tauncal soils
- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

183—Timmerman fine sandy loam, 0 to 2 percent slopes

Composition

Timmerman and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glacial outwash and alluvium mixed with loess in the upper part

Slope range: 0 to 2 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown fine sandy loam

5 to 19 inches—grayish brown sandy loam

19 to 28 inches—light brownish gray loamy coarse sand

28 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid over rapid

Available water capacity: Moderate

Effective rooting depth: 13 to 30 inches

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Royal soils
- Sagehill soils
- Winchester soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, permeability

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

184—Timmerman fine sandy loam, 2 to 5 percent slopes***Composition***

Timmerman and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glacial outwash and alluvium mixed with loess in the upper part

Slope range: 2 to 5 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown fine sandy loam

5 to 19 inches—grayish brown sandy loam

19 to 28 inches—light brownish gray loamy coarse sand

28 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid over rapid

Available water capacity: Moderate

Effective rooting depth: 13 to 30 inches

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Royal soils
- Sagehill soils
- Winchester soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations***Irrigated cropland***

Wind erosion hazard, compaction hazard, permeability

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

185—Timmerman fine sandy loam, 5 to 10 percent slopes***Composition***

Timmerman and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Glacial outwash and alluvium mixed with loess in the upper part

Slope range: 5 to 10 percent

Elevation: 400 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—grayish brown fine sandy loam

5 to 19 inches—grayish brown sandy loam

19 to 28 inches—light brownish gray loamy coarse sand

28 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid over rapid

Available water capacity: Moderate

Effective rooting depth: 13 to 30 inches

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Royal soils
- Sagehill soils
- Winchester soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard, permeability, slope

Livestock grazing

Corrosivity, permeability, coarse texture of the subsoil and substratum

186—Urban land-Torripsamments complex, gently rolling

Composition

Urban land—65 percent

Torripsamments and similar soils—25 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Torripsamments—mixed sand

Slope range: 0 to 10 percent

Elevation: 300 to 500 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Urban land

Description of areas: Land that is mostly covered by streets, parking lots, buildings, and other structures

Torripsamments

Representative profile

0 to 8 inches—grayish brown loamy fine sand
 8 to 30 inches—grayish brown loamy fine sand
 30 to 60 inches—grayish brown and light brownish gray fine sand

Soil properties and qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low
Runoff: Slow
Water erosion hazard: Slight
Wind erosion hazard: Severe

Contrasting Inclusions

- Sagehill and Royal soils

Major Use

Building sites

Major Management Limitations

Building sites

Available water capacity, wind erosion hazard, permeability

187—Wacota ashy silt loam, 0 to 2 percent slopes

Composition

Wacota and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces
Parent material: Loess mixed with volcanic ash
Slope range: 0 to 2 percent
Elevation: 800 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam
 8 to 24 inches—pale brown ashy silt loam
 24 to 32 inches—light gray ashy silt loam
 32 to 53 inches—brown silt loam
 53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Wind erosion hazard, compaction hazard, low annual precipitation

Livestock grazing

Corrosivity

188—Wacota ashy silt loam, 2 to 5 percent slopes

Composition

Wacota and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces

Parent material: Loess mixed with volcanic ash

Slope range: 2 to 5 percent

Elevation: 800 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam

8 to 24 inches—pale brown ashy silt loam

24 to 32 inches—light gray ashy silt loam

32 to 53 inches—brown silt loam

53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

189—Wacota ashy silt loam, 5 to 10 percent slopes

Composition

Wacota and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces

Parent material: Loess mixed with volcanic ash

Slope range: 5 to 10 percent

Elevation: 800 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam

8 to 24 inches—pale brown ashy silt loam

24 to 32 inches—light gray ashy silt loam

32 to 53 inches—brown silt loam

53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity

190—Wacota ashy silt loam, 10 to 15 percent slopes

Composition

Wacota and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces

Parent material: Loess mixed with volcanic ash

Slope range: 10 to 15 percent

Elevation: 800 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam

8 to 24 inches—pale brown ashy silt loam

24 to 32 inches—light gray ashy silt loam

32 to 53 inches—brown silt loam

53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity

191—Wacota ashy silt loam, 15 to 30 percent slopes***Composition***

Wacota and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces

Parent material: Loess mixed with volcanic ash

Slope range: 15 to 30 percent

Elevation: 800 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam

8 to 24 inches—pale brown ashy silt loam

24 to 32 inches—light gray ashy silt loam

32 to 53 inches—brown silt loam

53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Nonirrigated cropland**

Low annual precipitation, wind erosion hazard, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

192—Wacota ashy silt loam, 30 to 40 percent slopes***Composition***

Wacota and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Hills and terraces
Parent material: Loess mixed with volcanic ash
Slope range: 30 to 40 percent
Elevation: 800 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 8 inches—pale brown ashy silt loam
 8 to 24 inches—pale brown ashy silt loam
 24 to 32 inches—light gray ashy silt loam
 32 to 53 inches—brown silt loam
 53 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Severe

Contrasting Inclusions

- Ritzville soils

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing
 Corrosivity, slope

193—Wacota ashy silt loam, flooded, 0 to 2 percent slopes

Composition

Wacota and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Flood plains
Parent material: Alluvium derived from loess and volcanic ash
Slope range: 0 to 2 percent
Elevation: 800 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 4 inches—brown ashy silt loam
4 to 19 inches—pale brown ashy silt loam
19 to 31 inches—light gray ashy silt loam
31 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Very slow
Water erosion hazard: Slight
Wind erosion hazard: Severe
Frequency of flooding: Rare in April and May

Contrasting Inclusions

- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Low annual precipitation, wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

194—Wacota-Ritzcal complex, 10 to 30 percent slopes***Composition***

Wacota and similar soils—40 percent
Ritzcal and similar soils—35 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Wacota—hills and terraces; Ritzcal—hills
Parent material: Wacota—loess mixed with volcanic ash; Ritzcal—loess
Slope range: 10 to 30 percent
Elevation: 1,000 to 1,600 feet
Mean annual precipitation: 9 to 12 inches
Mean annual air temperature: 49 to 52 degrees F
Frost-free season (32 degrees F): 150 to 180 days

Typical Profile**Wacota**

0 to 8 inches—pale brown ashy silt loam
8 to 24 inches—pale brown ashy silt loam
24 to 32 inches—light gray ashy silt loam

32 to 53 inches—brown silt loam
 53 to 60 inches—pale brown silt loam

Ritzcal

0 to 4 inches—brown silt loam
 4 to 28 inches—pale brown silt loam
 28 to 60 inches—pale brown silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Severe
Wind erosion hazard: Wacota—severe; Ritzcal—moderate

Contrasting Inclusions

- Soils that have bedrock or a duripan at a depth of 20 inches or more
- Ritzville soils

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, wind erosion hazard, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

195—Warden very fine sandy loam, 0 to 2 percent slopes

Composition

Warden and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces
Parent material: Lacustrine deposits with a thin mantle of loess
Slope range: 0 to 2 percent
Elevation: 500 to 1,150 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam
 6 to 19 inches—pale brown silt loam
 19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

196—Warden very fine sandy loam, 2 to 5 percent slopes

Composition

*Warden and similar soils—*90 percent

*Contrasting inclusions—*10 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 2 to 5 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 19 inches—pale brown silt loam

19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, compaction hazard

Livestock grazing

Corrosivity

197—Warden very fine sandy loam, 5 to 10 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 5 to 10 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 19 inches—pale brown silt loam

19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity

198—Warden very fine sandy loam, 10 to 15 percent slopes

Composition

Warden and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments
Parent material: Lacustrine deposits with a thin mantle of loess
Slope range: 10 to 15 percent
Elevation: 500 to 1,150 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam
6 to 19 inches—pale brown silt loam
19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: Very high
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity

199—Warden very fine sandy loam, 15 to 25 percent slopes

Composition

Warden and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments
Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 15 to 25 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 19 inches—pale brown silt loam

19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, water erosion hazard, compaction hazard

Livestock grazing

Corrosivity, slope

200—Warden very fine sandy loam, 25 to 40 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 25 to 40 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—brown very fine sandy loam

6 to 19 inches—pale brown silt loam

19 to 60 inches—light brownish gray silt loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated orchards, livestock grazing

Major Management Limitations

Irrigated orchards

Wind erosion hazard, water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

201—Warden silt loam, 0 to 2 percent slopes

Composition

*Warden and similar soils—*90 percent

*Contrasting inclusions—*10 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 0 to 2 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

45 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Livestock grazing

Corrosivity

202—Warden silt loam, 2 to 5 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 2 to 5 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

24 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Livestock grazing

Corrosivity

203—Warden silt loam, 5 to 10 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 5 to 10 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

45 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Livestock grazing

Corrosivity

204—Warden silt loam, 10 to 15 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 10 to 15 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

45 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Slope, compaction hazard

Livestock grazing

Corrosivity

205—Warden silt loam, 15 to 25 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 15 to 25 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

45 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Slope, compaction hazard, water erosion hazard

Livestock grazing

Corrosivity, slope

206—Warden silt loam, 25 to 40 percent slopes

Composition

Warden and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces and terrace escarpments

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 25 to 40 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 6 inches—grayish brown silt loam

6 to 24 inches—pale brown silt loam

24 to 45 inches—pale brown silt loam

45 to 60 inches—pale brown very fine sandy loam

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Very high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Kennewick soils

Major Uses

Irrigated orchards, livestock grazing

Major Management Limitations

Irrigated orchards

Water erosion hazard, slope, compaction hazard

Livestock grazing

Corrosivity, slope

207—Warden silt loam, cemented substratum, 0 to 2 percent slopes

Composition

Warden and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 0 to 2 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—brown silt loam

8 to 23 inches—brown silt loam

23 to 36 inches—light brownish gray very fine sandy loam

36 to 41 inches—pale brown very fine sandy loam

41 to 51 inches—indurated, carbonate- and silica-cemented duripan

51 to 60 inches—stratified, indurated material to very gravelly sandy loam

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Livestock grazing

Corrosivity

208—Warden silt loam, cemented substratum, 2 to 5 percent slopes

Composition

Warden and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Lacustrine deposits with a thin mantle of loess

Slope range: 2 to 5 percent

Elevation: 500 to 1,150 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—brown silt loam

8 to 23 inches—brown silt loam

23 to 36 inches—light brownish gray very fine sandy loam

36 to 41 inches—pale brown very fine sandy loam

41 to 51 inches—indurated, silica-cemented duripan

51 to 60 inches—stratified, indurated material to very gravelly sandy loam

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: High

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard

Livestock grazing

Corrosivity

209—Warden silt loam, cemented substratum, 5 to 10 percent slopes

Composition

Warden and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces
Parent material: Lacustrine deposits with a thin mantle of loess
Slope range: 5 to 10 percent
Elevation: 500 to 1,150 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—brown silt loam
 8 to 23 inches—brown silt loam
 23 to 36 inches—light brownish gray very fine sandy loam
 36 to 41 inches—pale brown very fine sandy loam
 41 to 51 inches—indurated, carbonate- and silica-cemented duripan
 51 to 60 inches—stratified, indurated material to very gravelly sandy loam

Soil Properties and Qualities

Depth class: Deep (40 to 60 inches)
Drainage class: Well drained
Permeability: Moderate
Available water capacity: High
Runoff: Medium
Water erosion hazard: Moderate
Wind erosion hazard: Moderate

Contrasting Inclusions

- Soils that are calcareous to the surface

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Compaction hazard, slope

Livestock grazing

Corrosivity

210—Wiehl fine sandy loam, 0 to 2 percent slopes

Composition

Wiehl and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale

Slope range: 0 to 2 percent

Elevation: 900 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 5 inches—dark grayish brown fine sandy loam

5 to 16 inches—dark brown fine sandy loam

16 to 23 inches—dark brown paragravelly very fine sandy loam

23 to 33 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of 20 inches or less
- Soils that are loamy fine sand above the bedrock
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

211—Wiehl fine sandy loam, 5 to 10 percent slopes**Composition**

Wiehl and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale

Slope range: 5 to 10 percent

Elevation: 400 to 750 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—brown fine sandy loam

8 to 18 inches—yellowish brown fine sandy loam

18 to 25 inches—yellowish brown paragravelly very fine sandy loam

25 to 35 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 20 inches or more than 40 inches
- Soils that are loamy fine sand above the bedrock
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, slope, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

212—Wiehl fine sandy loam, 15 to 35 percent slopes

Composition

Wiehl and similar soils—75 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terrace escarpments

Parent material: Eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale

Slope range: 15 to 35 percent

Elevation: 400 to 750 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 8 inches—brown fine sandy loam

8 to 18 inches—yellowish brown fine sandy loam

18 to 25 inches—yellowish brown paragravelly very fine sandy loam
25 to 35 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Very rapid

Water erosion hazard: Severe

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 20 inches or more than 40 inches
- Soils that are loamy fine sand above the bedrock
- Badland
- Soils that are calcareous throughout the profile

Major Use

Livestock grazing

Major Management Limitations

Livestock grazing

Corrosivity, slope, depth to bedrock

213—Wiehl very fine sandy loam, 0 to 2 percent slopes

Composition

Wiehl and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale

Slope range: 0 to 2 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 14 inches—pale brown very fine sandy loam

14 to 29 inches—very pale brown very fine sandy loam

29 to 36 inches—very pale brown paragravelly very fine sandy loam

36 to 46 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 20 inches or more than 40 inches
- Soils that are loamy fine sand above the bedrock
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

214—Wiehl very fine sandy loam, 2 to 5 percent slopes

Composition

Wiehl and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Terraces

Parent material: Eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale

Slope range: 2 to 5 percent

Elevation: 500 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 14 inches—pale brown very fine sandy loam

14 to 29 inches—very pale brown very fine sandy loam

29 to 36 inches—very pale brown paragravelly very fine sandy loam

36 to 46 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderately high

Runoff: Slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Soils that have bedrock at a depth of less than 20 inches or more than 40 inches
- Soils that are loamy fine sand above the sandstone
- Soils that are calcareous throughout the profile

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations**Irrigated cropland**

Wind erosion hazard, depth to bedrock, compaction hazard

Livestock grazing

Corrosivity, depth to bedrock

215—Wiehl-Schlomer complex, 10 to 35 percent slopes**Composition**

Wiehl and similar soils—40 percent

Schlomer and similar soils—35 percent

Contrasting inclusions—25 percent

Setting

Position on landscape: Terraces

Parent material: Wiehl—eolian deposits and glaciofluvial deposits over sandstone, siltstone, and shale; Schlomer—loess over siltstone and shale

Slope range: 10 to 35 percent

Elevation: 750 to 1,000 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile**Wiehl**

0 to 14 inches—pale brown very fine sandy loam

14 to 29 inches—very pale brown very fine sandy loam

29 to 36 inches—very pale brown paragravelly very fine sandy loam

36 to 46 inches—weathered bedrock

Schlomer

0 to 4 inches—brown silt loam

4 to 16 inches—brown silt loam

16 to 22 inches—pale brown silt loam

22 to 34 inches—pale yellow silty clay loam

34 to 44 inches—weathered bedrock

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Wiehl—moderate; Schlomer—moderately slow

Available water capacity: Moderately high

Runoff: Medium

Water erosion hazard: Severe

Wind erosion hazard: Wiehl—severe; Schlomer—moderate

Contrasting Inclusions

- Quincy soils
- Soils that have bedrock at a depth of less than 20 inches or more than 40 inches

- Badland
- Rock outcrop

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Wind erosion hazard, depth to bedrock, compaction hazard, water erosion hazard, slope

Livestock grazing

Corrosivity, slope, depth to bedrock

216—Willis silt loam, 5 to 15 percent slopes

Composition

Willis and similar soils—85 percent

Contrasting inclusions—15 percent

Setting

Position on landscape: Hills

Parent material: Loess

Slope range: 5 to 15 percent

Elevation: 1,100 to 1,600 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 49 to 52 degrees F

Frost-free season (32 degrees F): 150 to 180 days

Typical Profile

0 to 10 inches—brown silt loam

10 to 18 inches—brown silt loam

18 to 22 inches—pale brown silt loam

22 to 32 inches—indurated, carbonate- and silica-cemented duripan

32 to 60 inches—stratified, indurated material with lenses of very gravelly sand

Soil Properties and Qualities

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Runoff: Medium

Water erosion hazard: Moderate

Wind erosion hazard: Slight

Contrasting Inclusions

- Soils that have a carbonate- and silica-cemented duripan at a depth of less than 20 inches or more than 40 inches
- Soils that are calcareous throughout the profile

Major Uses

Nonirrigated cropland, livestock grazing

Major Management Limitations

Nonirrigated cropland

Low annual precipitation, slope, depth to a duripan, compaction hazard

Livestock grazing

Corrosivity, depth to a duripan

217—Winchester loamy coarse sand, 2 to 5 percent slopes

Composition

Winchester and similar soils—90 percent

Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces

Parent material: Sandy alluvium and eolian sand

Slope range: 2 to 5 percent

Elevation: 350 to 800 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 15 inches—brown loamy coarse sand

15 to 45 inches—dark gray coarse sand

45 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)

Drainage class: Excessively drained

Permeability: Rapid

Available water capacity: Low

Runoff: Very slow

Water erosion hazard: Slight

Wind erosion hazard: Severe

Contrasting Inclusions

- Burbank soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, permeability

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture of the subsoil and substratum

218—Winchester loamy coarse sand, 5 to 10 percent slopes

Composition

Winchester and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Position on landscape: Terraces
Parent material: Sandy alluvium and eolian sand
Slope range: 5 to 10 percent
Elevation: 350 to 800 feet
Mean annual precipitation: 6 to 9 inches
Mean annual air temperature: 50 to 53 degrees F
Frost-free season (32 degrees F): 180 to 200 days

Typical Profile

0 to 15 inches—brown loamy coarse sand
 15 to 45 inches—dark gray coarse sand
 45 to 60 inches—gray coarse sand

Soil Properties and Qualities

Depth class: Very deep (more than 60 inches)
Drainage class: Excessively drained
Permeability: Rapid
Available water capacity: Low
Runoff: Slow
Water erosion hazard: Moderate
Wind erosion hazard: Severe

Contrasting Inclusions

- Burbank soils

Major Uses

Irrigated cropland, livestock grazing

Major Management Limitations

Irrigated cropland

Available water capacity, wind erosion hazard, permeability, slope

Livestock grazing

Corrosivity, sandy surface layer, permeability, coarse texture of the subsoil and substratum

219—Xeric Torriorthents, very steep

Composition

Xeric Torriorthents and similar soils—75 percent
Contrasting inclusions—25 percent

Setting

Position on landscape: Terrace escarpments
Parent material: Loess and material weathered from sandstone and siltstone

Slope range: 40 to 90 percent

Elevation: 350 to 950 feet

Mean annual precipitation: 6 to 9 inches

Mean annual air temperature: 50 to 53 degrees F

Frost-free season (32 degrees F): 180 to 200 days

Representative Profile

0 to 3 inches—light brownish gray silt loam

3 to 12 inches—very pale brown silt loam

12 to 60 inches—pale yellow silt loam

Soil Properties and Qualities

Depth class: Moderately deep to very deep (20 to 60 inches or more)

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Low to very high

Runoff: Very rapid

Water erosion hazard: Very severe

Wind erosion hazard: Moderate

Contrasting Inclusions

- Rock outcrop
- Soils that have a duripan at a depth of 10 to 40 inches
- Quincy soils
- Soils that are noncalcareous throughout the profile

Major Use

Wildlife habitat

220—Water

This map unit consists of open areas of water, the largest of which are along the Columbia and Snake Rivers.

221—Dam

This map unit consists of the concrete structures for the Lower Monumental and Ice Harbor Dams on the Snake River.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland; and as sites for buildings, sanitary facilities, and highways and other transportation systems. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

By Jeff Graham, conservation agronomist, Natural Resources Conservation Service.

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Franklin County has about 220,000 acres of nonirrigated cropland, which is subject to erosion from natural precipitation. Because the dominant rotation is wheat-fallow, a residue management system is needed. Practices that support a residue management system include use of cross-slope farming, filter strips or a vegetative cover, and occasional waterways. Wind erosion is also a concern. With only 9 to 12 inches of precipitation, the amount of crop residue may not be sufficient to keep the rate of erosion at an acceptable level. The amount of residue also is inadequate to maintain or improve soil tilth for prolonged productivity. In addition to residue management for erosion control, conservation practices such as stripcropping and planting permanent vegetative cover are beneficial for maintaining the soil resource.

Wind erosion can be even more of a problem in the areas of irrigated cropland than in the areas of nonirrigated cropland. To minimize erosion, a high level of management is needed when growing low-residue crops. Alternating between high-residue crops and low-residue crops can reduce the risk of erosion. If low-residue crops are grown in consecutive years, an annual cover crop can be used to minimize erosion during the critical erosion period. Approximately 90 percent of the irrigated cropland is under a sprinkler irrigation system, and about 10 percent is under a surface irrigation system. New technology is changing the methods of irrigation to more unique and efficient systems. Besides use of residue management, crop rotations, and cover crops, additional suitable conservation practices include planting windbreaks and vegetative strips, cropping perpendicular to the direction of the wind, and mulching.

Most of the water erosion that occurs in areas of irrigated cropland is irrigation-induced erosion. Irrigation-induced erosion not only can erode the soil, but it can carry chemicals and nutrients offsite. Irrigation systems should be properly designed to adjust the application rate to the intake rate of the soils.

Concerns about groundwater quality in the irrigated areas of the county are increasing. The nitrate-nitrogen level in wells commonly exceeds the standard of 10 parts per million for an area where groundwater provides drinking water for nearly 100 percent of the rural residents. The soils are dominantly coarse textured and are prone to leaching of contaminants when excessive irrigation water is applied. As a result, irrigation water and nutrient management are needed to keep water and agricultural chemicals in the root zone.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Yields per Acre

The average yields per acre per year that can be expected of the principal crops under a high level of management are shown in table 5. The yields shown for nonirrigated winter wheat are expected annual yields. A wheat-fallow crop rotation is used; thus, the expected yield should be doubled for the year in which a crop is harvested. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (USDA, 1961). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 5.

Prime Farmland and Other Important Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

About 220,000 acres in the survey area, or nearly 27 percent of the total acreage, would meet the requirements for prime farmland if irrigated. Areas of this land are scattered throughout the survey area, but most are in the north-central, central, and south-central parts. The nonirrigated soils in the survey area do not qualify as prime farmland because they do not have an adequate and dependable supply of irrigation water.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges from 0 to 5 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

Other important farmland is a State designation. The Washington State Conservation Commission is responsible for designating other important farmland. About 320,000 acres of the survey area, or nearly 40 percent of the total acreage, is considered farmland of statewide importance. This land does not qualify as prime farmland, but it is considered to be important for agriculture.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland and other important farmland to industrial and urban uses. The loss of this land to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland and farmland of statewide importance are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading "Detailed Soil Map Units."

Rangeland

By Richard A. Pudney, range management specialist, Natural Resources Conservation Service.

Of the approximately 806,000 acres of land in Franklin County, about 24 percent, or 195,000 acres, is rangeland. Most livestock operations are cow/calf. Individual operations vary, but most typically raise cattle in combination with nonirrigated wheat farming. Cattle generally graze the native range in spring and summer, and they graze in areas of nonirrigated grain stubble, irrigated stubble, and turnips or in feedlots in fall and winter. The farms/ranches vary in size from those that have a substantial amount of rangeland and a large number of cattle to those that are dominantly wheat farms with a few head of cattle to graze odd areas.

The vegetative production is dependent upon a number of factors, including the amount and timing of precipitation, length of growing season, topographic aspect, and available water capacity of the soil. The amount of annual precipitation is fairly uniform throughout the county. The majority of the county, about 63 percent, is in the 6- to 9-inch precipitation zone, but the northeast corner is in the 9- to 12-inch precipitation zone. Nearly all of the precipitation, about 88 percent, is received as snow in winter and as rain in spring and fall. Little, if any, precipitation occurs in July through September. The growing season is approximately 2 to 3 weeks shorter in the northern part of the county than in the southern part, where it is about 200 to 230 days.

Topographic aspect and available water capacity of the soils are important factors influencing vegetative production. Northerly aspects are highly productive, and they tend to support range that is in good or excellent condition. Southerly aspects are much less productive, and they generally support range that is in fair or poor condition. Deep soils generally have a high available water capacity and are relatively productive. Shallow soils have a lower available water capacity and are less productive.

Much of the rangeland in the county supports dominantly big sagebrush/bluebunch wheatgrass plant communities. Areas of sandy soils support dominantly Indian ricegrass/needleandthread plant communities. Idaho fescue/bluebunch wheatgrass communities are dominant in the northeast corner of the county.

As range condition deteriorates, invader species become established in the grass stands. Cheatgrass (*Bromus tectorum*) is an extremely aggressive invader grass species that has invaded across the entire county and the state of Washington. Medusahead (*Taeniatherum caput-medusae*) and red threeawn (*Aristida longiseta*) have invaded in the northeast corner of the county. Other invading rangeland species of significance in the county include diffuse knapweed (*Centaurea diffusa*), mustard (*Descurainia*), and filaree (*Erodium*).

The soil and plant resources in the county are maintained or improved through proper management. Management practices important for all rangeland are proper grazing use and use of a planned grazing system. Proper management also includes use of deferred grazing, proper season of use, and good distribution of grazing.

Distribution of grazing can be accomplished by proper placement of salt and water facilities and by fencing where needed. The suitability of range improvement practices such as brush management, range seeding, and use of stock water pipelines depends on the characteristics of a given soil.

Livestock graze selectively. They intensively graze the palatable and nutritious plants and leave the less palatable plants. Unless proper grazing management is used, the preferred plants become depleted. As the abundance of the preferred plants decreases, the abundance of the less palatable plants increases. As the less palatable plants are depleted by livestock, unpalatable grasses, weeds, shrubs, and annual plants invade. Areas of rangeland that are dominantly under these undesirable plants produce only a fraction of the potential usable forage; therefore, the range supports far fewer livestock than its potential. Sound range management consists of balancing the requirement of livestock and wildlife with the available forage and periodically deferring grazing during the growing season.

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 7 shows, for each soil that supports vegetation suitable for grazing, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil—is listed by common name. Under *rangeland composition*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the

present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the "National Range and Pasture Handbook" (<http://www.glti.nrcs.usda.gov/technical/publications/nrph.html>).

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Windbreaks and Environmental Plantings

By Dennis J. Robinson, state staff forester, Natural Resources Conservation Service.

Windbreaks protect livestock, buildings, roads, yards, fruit trees, vineyards, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Farmstead and feedlot windbreaks generally consist of two or three rows of trees and shrubs. These windbreaks reduce energy costs for farm buildings and protect cattle during the coldest times in winter.

Although there are few trees and shrubs in many areas of the county, windbreaks can be established if they are properly planted and irrigated, typically with a drip irrigation system. Irrigation is essential for establishment, and supplemental water commonly is also needed after establishment.

The most effective windbreak plantings consist of dense, low-growing shrubs in the windward rows, taller deciduous trees or shrubs in the center row or rows, and evergreen trees or shrubs in the leeward rows. If only one or two rows are planted, species that give maximum protection should be selected. If protection of a large area is needed, tall trees should be planted. If the planting is needed to control ground winds for a short distance, dense shrubs or evergreens are most effective. Generally, the reduction in the distance of wind movement on the leeward side of the planting is equal to 10 to 20 times the height of the windbreak.

Plantings suitable for use as windbreaks have been tested at the State agricultural experiment stations at Lind and Prosser. Siberian peashrub is the shrub most commonly used in the windward row. Green ash, honeylocust, and poplar are the most common deciduous trees. Poplar commonly is used in single row windbreaks, especially for protection of orchards and vineyards. These species commonly are irrigated. Rocky Mountain juniper, Austrian pine, and blue spruce are the most commonly used evergreens.

The spacing between the rows and between the trees and shrubs in the rows is important. In nonirrigated plantings, the rows should be 20 to 24 feet apart. In irrigated plantings, the rows should be 16 feet apart. In the rows, the trees should be 6 to 12 feet apart and the shrubs should be 2 to 3 feet apart.

Site preparation prior to planting also is important. Competition from existing vegetation can prevent establishment. Vegetation control during establishment and for the life of the planting in nonirrigated areas is critical for a successful windbreak.

Farmstead plantings should be at least 100 feet from the farmstead to allow for some air movement on hot days. Rows should be spaced so that they can be maintained with available equipment. Rounded corners are easier to cultivate than are square ones. In irrigated areas, it is necessary to consider the irrigation system used and the risk of damage to underground pipes or drip lines. Consideration of the overhead power lines is necessary when planning windbreaks.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 8 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 8 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

The survey area has many scenic, recreational, geologic, and historic areas of interest. These areas are used for camping, hiking, hunting, fishing, sports, sightseeing, bicycling, picnicking, and boating. Public areas available for recreation in the survey area include Chewana Park, Scooteney Reservoir, Palouse Falls State Park, Levey Park, Windust Park, Sacajawea State Park, and Lyons Ferry. The Columbia and Snake Rivers are prime fishing areas. Other sites of interest include the Juniper Dunes Wilderness, northeast of Pasco, and the Wahluke Wildlife Recreation Area, in the northeastern part of the survey area.

Wildlife Habitat

At the time of settlement, most of Franklin County supported arid, shrub-steppe plant communities that consisted of grasses, forbs, and shrubs. Trees were only in the unique "juniper forest" and in the riparian areas along the Snake and Columbia Rivers. Because of the extremely arid nature of the shrub-steppe plant communities, they provided habitat for a limited number of species, including small rodents, coyote, badger, gopher snake, rattlesnake, and horned lizard. The most commonly occurring birds included species such as meadowlark, horned lark, mourning dove, sage sparrow, Swainson's hawk, and sparrow hawk. Riparian areas supported a much more diverse plant community and provided drinking water, which contributed to the much greater abundance and diversity of wildlife species. These areas provided habitat for numerous species of birds and mammals, including red-tailed hawk, great horned owl, raccoon, great blue heron, mule deer, and beaver. The Columbia and Snake Rivers provided habitat for an abundance of nesting and migrating waterfowl.

Many of the original shrub-steppe plant communities have been converted to irrigated or nonirrigated agriculture, resulting in a reduction in the populations of many native wildlife species. The agricultural land, however, provides habitat for introduced game birds such as pheasant, chukar, Hungarian partridge, and California quail, especially where it is interspersed with areas of native plant communities, wetland, riparian areas, and other uncultivated land. Cropland also provides key feeding areas for several thousand migrating waterfowl that roost on irrigation reservoirs of the Snake and Columbia Rivers.

Permanent cover for wildlife is deficient in most areas of the agricultural land. Conservation practices such as use of hedgerows, windbreaks, and grassed

waterways and protection and enhancement of riparian vegetation can be used effectively on most agricultural land to not only improve the wildlife habitat but also to help control erosion, protect water quality, and improve the esthetics.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction,

and maintenance. Table 9 shows the degree and kind of soil limitations that affect dwellings with and without basements and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

Table 10 shows the degree and kind of soil limitations that affect septic tank absorption fields and trench sanitary landfills. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Tables 11a and 11b give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 11a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material,

and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. The numbers 0.08 to 0.74 indicate the degree to which the layer is a likely source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In table 11b, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Water Management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 13 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages

are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 14 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 14, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per

hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 14, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 14 as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter,

and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 15 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 16 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These

consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 16 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 16 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent

of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, duripans, and strongly contrasting textural stratification. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1975, 1994, and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 18 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Haploxerolls (*Hapl*, meaning minimal horization, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Calcic Haploxerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-silty, mixed, superactive, mesic Calcic Haploxerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. An example is the Ritzville series.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the survey area is described. The detailed description of each soil horizon follows

standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1994). Some of the classifications given in table 18 have been updated with “Soil Taxonomy” (Soil Survey Staff, 1999). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the taxonomic unit.

Alderdale Series

The Alderdale series consists of moderately deep, excessively drained soils that formed in glacial outwash on terraces. Slopes are 0 to 5 percent. Elevation is 350 to 950 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Alderdale extremely cobbly loamy sand, 0 to 5 percent slopes, about 3 miles below Ice Harbor Dam; about 2,400 feet east and 4,480 feet south of the northwest corner of sec. 21, T. 9 N., R. 31 E.

- A—0 to 3 inches; pale brown (10YR 6/3) extremely cobbly loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; 50 percent cobbles and 30 percent gravel; slightly alkaline; clear smooth boundary.
- C1—3 to 30 inches; pale brown (10YR 6/3) extremely cobbly fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; 40 percent cobbles, 40 percent gravel, and 5 percent stones; slightly alkaline; clear wavy boundary.
- C2—30 to 35 inches; pale brown (10YR 6/3) extremely cobbly loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; violently effervescent; 40 percent cobbles, 45 percent gravel, and 5 percent stones; slightly alkaline; abrupt wavy boundary.
- 2R—35 inches; fractured basalt.

Depth to bedrock is 20 to 40 inches.

The A horizon has value of 3 or 4 moist and chroma of 2 or 3 moist or dry. It is 60 to 80 percent rock fragments.

The C horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is fine sand, loamy sand, coarse sand, or sand with 65 to 90 percent rock fragments, dominantly cobbles.

Aquents

Aquents consists of very deep, poorly drained soils on flood plains. These soils formed in sandy alluvium and lacustrine sediment. Slopes are 0 to 3 percent. Elevation is 300 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Representative profile of Aquents in an area of Aquents-Halaquepts complex, nearly level, about 1.5 miles north of Basin City; about 2,500 feet west and 300 feet north of the southeast corner of sec. 14, T. 13 N., R. 29 E.

- A—0 to 4 inches; grayish brown (2.5Y 5/2) fine sand, dark grayish brown (2.5Y 4/2) moist; massive; loose, nonsticky and nonplastic; many very fine roots throughout and few coarse roots in mat at top of horizon; slightly alkaline; clear smooth boundary.
- C1—4 to 20 inches; grayish brown (10YR 5/2) fine sand, dark grayish brown (10YR 4/2) moist; common coarse distinct strong brown (7.5YR 5/6) redoximorphic

concentrations; massive; loose, nonsticky and nonplastic; slightly alkaline; clear wavy boundary.

C2—20 to 60 inches; grayish brown (10YR 5/2) fine sand, dark grayish brown (10YR 4/2) moist; common medium prominent dark yellowish brown (10YR 4/6) redoximorphic concentrations; massive; loose, nonsticky and nonplastic; slightly alkaline.

Depth to bedrock is more than 60 inches. The water table is at the surface to a depth of 18 inches in April through November. Occasional, brief periods of flooding occur in spring.

The A horizon has hue of 10YR or 2.5Y, value of 4 to 6 dry and 2 to 5 moist, and chroma of 0 to 2 moist or dry.

The C horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 1 or 2 moist or dry. It is loamy fine sand, fine sand, or very fine sandy loam with thin strata of silt loam.

Bakeoven Series

The Bakeoven series consists of very shallow, well drained soils on benches, hillsides, and ridgetops. These soils formed in loess and residuum weathered from basalt. Slopes are 0 to 35 percent. Elevation is 550 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Bakeoven very cobbly silt loam in an area of Licksillet-Bakeoven complex, 0 to 35 percent slopes, about 12 miles northeast of Kahlotus; about 2,500 feet west and 1,300 feet south of the northeast corner of sec. 21, T. 14 N., R. 36 E.

A—0 to 3 inches; brown (10YR 5/3) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure breaking to medium granular structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; 10 percent gravel, 20 percent cobbles, and 5 percent stones; neutral; clear smooth boundary.

Bw1—3 to 6 inches; brown (10YR 5/3) very cobbly silt loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; soft, friable, moderately sticky and moderately plastic; common very fine roots; 15 percent gravel and 20 percent cobbles; neutral; clear smooth boundary.

Bw2—6 to 8 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; 50 percent gravel and 5 percent cobbles; slightly alkaline; abrupt smooth boundary.

2R—8 inches; unweathered bedrock.

Thickness of the mollic epipedon and depth to bedrock are 4 to 10 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 to 4 dry and 2 or 3 moist. It is slightly acid to slightly alkaline.

The Bw horizon has value and chroma similar to that of the A horizon. The Bw horizon is loam or silt loam with 35 to 80 percent cobbles and gravel.

Burbank Series

The Burbank series consists of very deep, excessively drained soils on terraces and terrace escarpments. These soils formed in eolian sand over gravelly glacial flood deposits. Slopes are 0 to 35 percent. Elevation is 350 to 950 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Burbank loamy fine sand, 0 to 5 percent slopes, about 5 miles west of Pasco; about 3,150 feet west and 2,000 feet south of the northeast corner of sec. 12, T. 9 N., R. 28 E.

- Ap—0 to 3 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine roots; 5 percent gravel; slightly alkaline; abrupt smooth boundary.
- Bw1—3 to 24 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; massive parting to single grain; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; 10 percent gravel; slightly alkaline; abrupt smooth boundary.
- Bw2—24 to 27 inches; grayish brown (10YR 5/2) very gravelly loamy fine sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine and few medium roots; 25 percent gravel and 15 percent cobbles; slightly alkaline; abrupt smooth boundary.
- Bk1—27 to 45 inches; gray (10YR 5/1) extremely gravelly sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and few medium roots; coatings of secondary carbonates on undersides of coarse fragments; strongly effervescent; 70 percent gravel and 10 percent cobbles; moderately alkaline; clear smooth boundary.
- Bk2—45 to 60 inches; dark gray (10YR 4/1) extremely gravelly sand, black (10YR 2/1) moist; single grain; loose, nonsticky and nonplastic; coatings of secondary carbonates on undersides of gravel; slightly effervescent; 70 percent gravel; moderately alkaline.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loamy fine sand or gravelly loamy fine sand with 5 to 30 percent gravel.

The Bw1 horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loamy fine sand or loamy sand with 10 to 25 percent gravel.

The Bw2 horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loamy sand or loamy fine sand with 35 to 60 percent gravel and cobbles.

The Bk horizon has value of 4 to 6 dry and 2 to 4 moist, and it has chroma of 1 to 3 dry or moist. It is coarse sand, sand, or loamy sand with 60 to 80 percent gravel and cobbles.

Burke Series

The Burke series consists of moderately deep, well drained soils on hills. These soils formed in loess and glaciolacustrine deposits over a duripan. Slopes are 0 to 5 percent. Elevation is 900 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Burke very fine sandy loam, 0 to 2 percent slopes, about 4.5 miles west of Connell; about 300 feet east and 700 feet north of the southwest corner of sec. 32, T. 14 N., R. 31 E.

- Ap—0 to 8 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; clear smooth boundary.
- Bw—8 to 22 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; clear wavy boundary.
- Bk—22 to 26 inches; white (10YR 8/2) silt loam, light brownish gray (10YR 6/2) moist;

moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common medium irregular soft masses of secondary carbonates; strongly effervescent; 10 percent gravel; moderately alkaline; clear wavy boundary.

2Bkqm—26 to 36 inches; indurated, carbonate- and silica-cemented duripan.

3Bkqm—36 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. Depth to secondary carbonates is 4 to 36 inches.

The A horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is very fine sandy loam or silt loam. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 7 or 8 dry and 5 or 6 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam or very fine sandy loam. It is moderately alkaline or strongly alkaline.

The 3Bkqm horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Chedehap Series

The Chedehap series consist of very deep, well drained soils on terraces. These soils formed in glaciofluvial sediment. Slopes are 0 to 10 percent. Elevation is 400 to 1,100 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Chedehap fine sandy loam, 2 to 5 percent slopes, about 1 mile east of Connell; about 150 feet east and 2,400 feet north of the southwest corner of sec. 19, T. 14 N., R. 32 E.

A—0 to 4 inches; brown (10YR 5/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; clear smooth boundary.

Bw1—4 to 8 inches; pale brown (10YR 6/3) fine sandy loam, dark yellowish brown (10YR 3/4) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; clear smooth boundary.

Bw2—8 to 18 inches; pale brown (10YR 6/3) sandy loam, brown and dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; slightly alkaline; clear smooth boundary.

Bk1—18 to 24 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine roots; strongly effervescent; slightly alkaline; clear smooth boundary.

Bk2—24 to 31 inches; light gray (10YR 7/2) sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; hard, friable, nonsticky and nonplastic; few very fine roots; violently effervescent; strongly alkaline; abrupt smooth boundary.

2Bk3—31 to 39 inches; pale brown (10YR 6/3) loamy coarse sand, dark brown (10YR 3/3) moist; massive; loose, nonsticky and nonplastic; few very fine roots; strongly effervescent; very strongly alkaline; abrupt smooth boundary.

2Bk4—39 to 60 inches; multicolored coarse sand; single grain; loose, nonsticky and nonplastic; strongly effervescent; strongly alkaline.

Depth to the strongly contrasting textural stratification (2Bk horizon) is 26 to 40 inches. Depth to secondary carbonates is 17 to 32 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is fine sandy loam, coarse sandy loam, or sandy loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is sandy loam, fine sandy loam, or loamy fine sand. It is moderately alkaline or strongly alkaline.

The 2Bk horizon has value of 6 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is loamy sand, loamy coarse sand, or coarse sand with 0 to 20 percent gravel and cobbles. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 10 to 20.

Cleman Series

The Cleman series consists of very deep, well drained soils on flood plains. These soils formed in alluvium. Slopes are 0 to 2 percent. Elevation is 400 to 1,400 feet. The average annual precipitation is 8 to 12 inches, the average annual air temperature is 49 to 53 degrees F, and the frost-free season is 150 to 200 days.

Typical pedon of Cleman fine sandy loam, 0 to 2 percent slopes, about 5 miles southeast of Eltopia; about 1,740 feet east and 1,750 feet north of the southwest corner of sec. 15, T. 11 N., R. 31 E.

Ap1—0 to 4 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; common very fine vesicular pores; slightly alkaline; abrupt smooth boundary.

Ap2—4 to 11 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine and medium roots; few very fine vesicular pores; slightly alkaline; clear smooth boundary.

C1—11 to 14 inches; grayish brown (10YR 5/2) very fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; many very fine and common fine and medium roots; few very fine vesicular pores and few fine tubular pores; moderately alkaline; clear smooth boundary.

C2—14 to 28 inches; grayish brown (10YR 5/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; thin ($\frac{1}{2}$ inch thick) lenses of silt loam; massive; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few very fine vesicular pores; moderately alkaline; clear smooth boundary.

C3—28 to 60 inches; stratified, grayish brown (10YR 5/2) fine sandy loam, dark grayish brown (10YR 4/2) moist, and grayish brown (10YR 5/3) loamy very fine sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; slightly effervescent; moderately alkaline.

Thickness of the mollic epipedon is 10 to 20 inches. The Cleman soils are subject to rare periods of flooding.

The A horizon has value of 4 or 5 dry and 2 or 3 moist. It is neutral or slightly alkaline.

The upper part of the C horizon is very fine sandy loam or fine sandy loam. It is

neutral or slightly alkaline. The lower part of the C horizon is stratified sand to silt loam. It is neutral to moderately alkaline.

Eltopia Series

The Eltopia series consists of moderately deep, well drained soils on terraces. These soils formed in loess mixed with alluvium over a duripan. Slopes are 0 to 5 percent. Elevation is 550 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Eltopia very fine sandy loam, 2 to 5 percent slopes, about 2.5 miles southwest of Basin City; about 1,800 feet east and 600 feet north of the southwest corner of sec. 33, T. 13 N., R. 29 E.

- Ap1—0 to 4 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; clear smooth boundary.
- Ap2—4 to 13 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine and few coarse roots; common very fine tubular pores; slightly alkaline; clear smooth boundary.
- Bw—13 to 25 inches; brown (10YR 5/3) very fine sandy loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine and few coarse roots; common very fine tubular pores; 5 percent gravel; slightly alkaline; abrupt smooth boundary.
- 2Bkqm—25 to 29 inches; light brownish gray (10YR 6/2) weakly cemented duripan that crushes to gravelly fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; very hard, very firm, slightly sticky and slightly plastic; thinly laminated; few very fine roots in cracks; 30 percent gravel; coatings of secondary carbonates on laminae and underside of gravel; strongly effervescent; moderately alkaline; clear smooth boundary.
- 3Bkqm—29 to 35 inches; light gray (10YR 7/2) moderately cemented duripan that crushes to very gravelly silt loam, grayish brown (10YR 5/2) moist; massive; extremely hard, very firm, slightly sticky and slightly plastic; few very fine roots in cracks; 55 percent gravel; disseminated secondary carbonates and secondary carbonates on underside of gravel; strongly effervescent; moderately alkaline; clear wavy boundary.
- 3Bk—35 to 60 inches; light brownish gray (10YR 6/2) extremely gravelly very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; 70 percent gravel; secondary carbonates on underside of gravel and disseminated in matrix; strongly effervescent; moderately alkaline.

Depth to the weakly cemented or moderately cemented duripan is 20 to 40 inches.

The Ap1 horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It has granular or platy structure. It is neutral or slightly alkaline.

The Ap2 horizon has value of 5 or 6 dry and 3 or 4 moist. It is silt loam or very fine sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 to 5 moist. It is very fine sandy loam or silt loam.

The 2Bkqm and 3Bkqm horizons are weakly cemented or moderately cemented and crush to gravelly fine sandy loam or very gravelly silt loam. They are 15 to 60 percent gravel. They are 5 to 15 percent calcium carbonate.

The 3Bk horizon has value of 6 or 7 dry and 4 or 5 moist. It is loamy sand, fine

sandy loam, or very fine sandy loam with 60 to 75 percent gravel. It is 5 to 15 percent calcium carbonate.

Ephrata Series

The Ephrata series consists of very deep, well drained soils that formed in glacial outwash mixed with loess in the upper part. These soils are on outwash plains and terraces. Slopes are 0 to 30 percent. Elevation is 900 to 1,100 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Ephrata sandy loam, 0 to 2 percent slopes, southwest of Othello; 900 feet east and 100 feet north of the south $\frac{1}{4}$ corner of sec. 8, T. 15 N., R. 29 E., W.M.

- Ap—0 to 6 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; slightly alkaline; abrupt smooth boundary.
- Bw1—6 to 14 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; 5 percent gravel; many fine roots; few very fine tubular pores; slightly alkaline; clear wavy boundary.
- Bw2—14 to 21 inches; pale brown (10YR 6/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; 15 percent gravel; many fine roots; common very fine tubular pores; moderately alkaline; clear wavy boundary.
- Bw3—21 to 28 inches; pale brown (10YR 6/3) gravelly fine sandy loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; 20 percent gravel; many fine roots; common very fine tubular pores; moderately alkaline; clear wavy boundary.
- 2Ck—28 to 60 inches; multicolored extremely gravelly sand; single grain; loose, nonsticky and nonplastic; 60 percent gravel and 10 percent cobbles; coatings of secondary carbonates and silica on underside of pebbles; moderately alkaline.

Depth to the strongly contrasting textural stratification is 20 to 40 inches. The upper part of the particle-size control section averages 5 to 35 percent coarse fragments and less than 50 percent fine sand or coarser material, and the lower part averages 50 to 85 percent coarse fragments.

The A horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It has weak platy or granular structure. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It is fine sandy loam or sandy loam with 5 to 30 percent gravel. It is slightly alkaline or moderately alkaline.

The 2Ck horizon is sand or coarse sand with 35 to 85 percent cobbles and gravel.

Esquatzel Series

The Esquatzel series consists of very deep, well drained soils on flood plains. These soils formed in silty alluvium. Slopes are 0 to 2 percent. Elevation is 600 to 1,600 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 53 degrees F, and the frost-free season is 150 to 200 days.

Typical pedon of Esquatzel silt loam, 0 to 2 percent slopes, about 1 mile east of Eltopia; about 2,450 feet west and 1,850 feet north of the southeast corner of sec. 12, T. 11 N., R. 30 E.

A—0 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak thin

platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine tubular pores; slightly alkaline; clear wavy boundary.

AB—5 to 15 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; moderately alkaline; gradual wavy boundary.

Bw1—15 to 48 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; moderately alkaline; gradual wavy boundary.

Bw2—48 to 60 inches; light gray (10YR 7/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; strongly effervescent; about 5 percent pockets of ash 1 to 10 centimeters in diameter; moderately alkaline.

Thickness of the mollic epipedon is 10 to 15 inches.

The A horizon has chroma of 2 or 3. It is neutral or slightly alkaline.

The Bw horizon has value of 5 to 7 dry and chroma of 2 to 4 moist. It is slightly alkaline or moderately alkaline. It is very fine sandy loam or silt loam.

Farrell Series

The Farrell series consists of very deep, well drained soils on terraces and terrace escarpments. These soils formed in glaciofluvial deposits with a mantle of loess. Slopes are 0 to 60 percent. Elevation is 450 to 1,500 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Farrell loam, 5 to 10 percent slopes, about 10 miles southeast of Kahlotus; about 2,350 feet east and 900 feet south of the northwest corner of sec. 12, T. 13 N., R. 35 E.

Ap—0 to 7 inches; brown (10YR 5/3) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; slightly alkaline; gradual smooth boundary.

Bw1—7 to 16 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure; hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; slightly alkaline; diffuse smooth boundary.

Bw2—16 to 41 inches; brown (10YR 5/3) silt loam, brown and dark brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; slightly alkaline; diffuse smooth boundary.

2Bk—41 to 48 inches; pale brown (10YR 6/3) loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; strongly effervescent; strongly alkaline; gradual smooth boundary.

2Ck—48 to 60 inches; multicolored coarse sand; single grain; loose, nonsticky and nonplastic; strongly effervescent; strongly alkaline.

Thickness of the mollic epipedon is 9 to 17 inches. Strongly contrasting textural material and secondary carbonates (Bk horizon) are at a depth of 40 to 60 inches or more.

The Ap horizon has value of 4 or 5 dry and 3 moist, and it has chroma of 2 or 3 dry

or moist. It has subangular blocky, platy, or granular structure. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loam, silt loam, or sandy loam. It is slightly alkaline or moderately alkaline.

The 2Bk horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is sandy loam, coarse sandy loam, or loamy coarse sand. It is moderately alkaline or strongly alkaline.

The 2Ck horizon is multicolored; colors typically have value of 6 dry and 4 or 5 moist and chroma of 2 or 3 dry or moist. The horizon is sand, coarse sand, or loamy coarse sand. It is moderately alkaline or strongly alkaline.

Finley Series

The Finley series consists of very deep, well drained soils on outwash terraces (fig. 5). These soils formed in gravelly alluvium. Slopes are 0 to 50 percent. Elevation is 500 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Finley very fine sandy loam in an area of Finley-Burbank-Starbuck complex, 0 to 10 percent slopes, about 0.5 mile northwest of Basin City; about 700 feet west and 800 feet south of the northeast corner of sec. 22, T. 13 N., R. 29 E.

- A—0 to 4 inches; brown (10YR 5/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; clear smooth boundary.
- Bw—4 to 13 inches; brown (10YR 5/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine roots; 10 percent gravel; slightly alkaline; clear smooth boundary.
- Bk—13 to 27 inches; light brownish gray (2.5Y 6/2) very gravelly very fine sandy loam, dark grayish brown (2.5Y 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; 40 percent gravel and 15 percent cobbles; violently effervescent; moderately alkaline; gradual smooth boundary.
- 2Ck—27 to 60 inches; light brownish gray (2.5Y 6/2) extremely gravelly sand, dark grayish brown (2.5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 50 percent gravel and 35 percent cobbles; violently effervescent; moderately alkaline.

Depth to secondary carbonates is 12 to 40 inches or more. Depth to the strongly contrasting textural material (2Ck horizon) is 20 to 40 inches.

The A horizon has value of 5 dry and 3 moist, and it has chroma of 2 or 3 dry or moist. It is very fine sandy loam or gravelly sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is very fine sandy loam or fine sandy loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 10YR or 2.5Y, value of 6 dry and 4 moist, and chroma of 2 or 3 dry or moist. It is very fine sandy loam or sandy loam with 35 to 70 percent gravel. It is slightly alkaline or moderately alkaline.

The 2Ck horizon is multicolored, but it typically has hue of 2.5Y or 10YR, value of 6 dry or 4 moist, and chroma of 2 or 3 dry or moist. The horizon is sand or coarse sand with 60 to 85 percent gravel and cobbles, dominantly gravel. It is slightly alkaline or moderately alkaline.

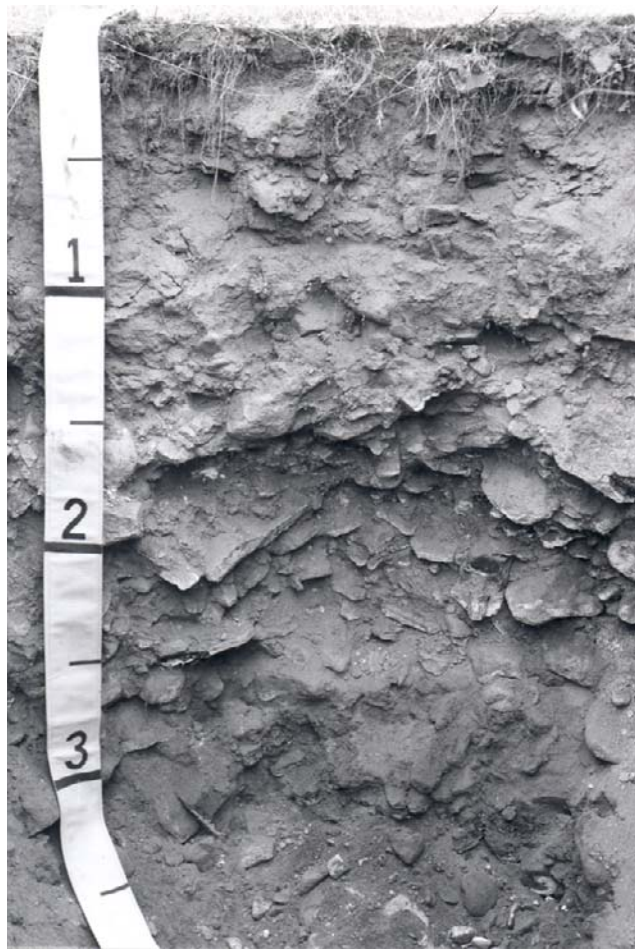


Figure 5.—Profile of a Finley soil. A very gravelly subsoil is at a depth of about 13 inches. The numerals on the tape are in feet.

Halaquepts

Halaquepts consists of very deep, moderately well drained and somewhat poorly drained soils on flood plains and in drainageways. These soils formed in lacustrine deposits with a thin mantle of loess or in mixed alluvium. Slopes are 0 to 3 percent. Elevation is 300 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Representative pedon of Halaquepts in an area of Aquents-Halaquepts complex, nearly level, about 11 miles north of Mesa; about 1,500 feet west and 890 feet south of the northeast corner of sec. 10, T. 14 N., R. 30 E.

A1—0 to 2 inches; light brownish gray (10YR 6/2) loam, brown and dark brown (10YR 4/3) moist; common fine faint dark yellowish brown (10YR 4/4) redoximorphic concentrations; weak fine granular structure; hard, friable, nonsticky and slightly plastic; many very fine and fine and common medium roots; slightly effervescent; strongly alkaline; abrupt smooth boundary.

A2—2 to 5 inches; light brownish gray (10YR 6/2) loam, brown and dark brown (10YR

4/3) moist; many fine distinct strong brown (7.5YR 4/6) redoximorphic concentrations; weak fine and medium granular structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; few fine tubular pores; moderately alkaline; clear smooth boundary.

Bq—5 to 12 inches; light brownish gray (10YR 6/2) loam, very dark gray (10YR 3/1) moist; common medium distinct dark yellowish brown (10YR 4/4) redoximorphic concentrations; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium and coarse roots; common fine tubular pores; moderately alkaline; clear smooth boundary.

C1—12 to 17 inches; pale brown (10YR 6/3) very fine sandy loam, dark gray (10YR 4/1) moist; few fine faint brown and dark brown (10YR 4/3) redoximorphic concentrations; massive; slightly hard, friable, nonsticky and slightly plastic; few very fine and common medium and coarse roots; few fine tubular pores; moderately alkaline; gradual smooth boundary.

C2—17 to 43 inches; light brownish gray (10YR 6/2) silt loam, gray (5Y 5/1) moist; common medium prominent dark yellowish brown (10YR 4/4) redoximorphic concentrations; massive; slightly hard, friable, slightly sticky and slightly plastic; strongly alkaline; gradual smooth boundary.

C3—43 to 60 inches; very pale brown (10YR 7/3) silt loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and slightly plastic; moderately alkaline.

A water table is at a depth of 6 to 36 inches in April through November. Halaquepts are not subject to flooding or are subject to occasional periods of flooding in spring.

The A horizon is loam or silt loam. It has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It is moderately alkaline to very strongly alkaline. The sodium adsorption ratio is 10 to 50. The electrical conductivity is 2 to 32 millimhos per centimeter.

The B and C horizons are loam, silt loam, very fine sandy loam, fine sandy loam, or sandy loam. They have hue of 10YR, 2.5Y, or 5Y; value of 6 or 7 dry and 3 to 5 moist; and chroma of 1 to 3 dry or moist. They are moderately alkaline or strongly alkaline.

Hezel Series

The Hezel series consists of very deep, somewhat excessively drained soils on dissected terraces. These soils formed in glaciofluvial deposits with a mantle of eolian sand. Slopes are 0 to 60 percent. Elevation is 400 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Hezel loamy fine sand, 0 to 15 percent slopes, about 1 mile east of Glade; 700 feet east and 500 feet north of the southwest corner of sec. 24, T. 10 N., R. 29 E.

A—0 to 7 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 4/3) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many very fine and fine irregular pores; moderately alkaline; clear smooth boundary.

C—7 to 18 inches; brown (10YR 5/3) loamy sand, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine irregular pores; moderately alkaline; clear smooth boundary.

2Ck1—18 to 27 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak coarse prismatic structure; soft, friable, nonsticky and nonplastic; common fine roots; many very fine and fine irregular pores; secondary carbonates on faces of peds; strongly effervescent; strongly alkaline; abrupt smooth boundary.

2Ck2—27 to 60 inches; light gray (2.5Y 7/2), stratified silt loam to fine sandy loam, grayish brown (2.5Y 5/2) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; few fine roots; common very fine and fine irregular pores; secondary carbonates in seams and lenses; strongly effervescent; strongly alkaline.

Depth to secondary carbonates is 15 to 36 inches. Depth to extremely cobbly material, where present, is 40 to 60 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is loamy fine sand or fine sand. It is neutral to moderately alkaline.

The C horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is loamy fine sand, loamy sand, or fine sand. It is neutral to moderately alkaline.

The 2Ck horizon has hue of 2.5Y or 10YR, value of 5 to 7 dry and 3 to 5 moist, and chroma of 1 to 3 moist or dry. It is fine sandy loam, very fine sandy loam, or silt loam over stratified silt loam to very fine sandy loam. It is slightly alkaline to strongly alkaline.

In some pedons, the profile below a depth of 40 inches is extremely cobbly very fine sandy loam, extremely cobbly fine sandy loam, or extremely cobbly loamy sand with 60 to 90 percent rock fragments.

Kahlotus Series

The Kahlotus series consists of very deep, well drained soils on terraces. These soils formed in glaciofluvial deposits mixed with a minor amount of loess in the upper part. Slopes are 0 to 60 percent. Elevation is 500 to 1,500 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Kahlotus very fine sandy loam, 2 to 5 percent slopes, about 14 miles northeast of Pasco and 1 mile north of the Kahlotus Highway-Levey Road Junction; 1,700 feet east and 2,400 feet south of the northwest corner of sec. 6, T. 9 N., R. 32 E., W.M.

Ap—0 to 10 inches; brown (10YR 5/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; few very fine tubular pores; 5 percent gravel; neutral; abrupt smooth boundary.

Bw1—10 to 17 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular pores; 5 percent gravel; neutral; abrupt wavy boundary.

Bw2—17 to 37 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and few fine roots; common very fine tubular pores; 5 percent gravel; slightly alkaline; abrupt wavy boundary.

Bk1—37 to 55 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; many very fine tubular pores; 5 percent gravel; violently effervescent; moderately alkaline; abrupt wavy boundary.

Bk2—55 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; strongly effervescent; threads of secondary carbonates; moderately alkaline.

Thickness of the mollic epipedon is 10 to 15 inches.

The A horizon has value of 4 or 5 dry. It is neutral or slightly alkaline.

The Bw horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist. It is silt loam or very fine sandy loam. It is neutral or slightly alkaline.

The Bk horizon has hue of 2.5Y or 10YR, value of 4 or 5 moist, and chroma of 2 or 3 dry or moist. It is silt loam or very fine sandy loam.

Kennewick Series

The Kennewick series consists of very deep, well drained soils on terraces. These soils formed in lacustrine deposits. Slopes are 0 to 60 percent. Elevation is 500 to 1,500 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Kennewick silt loam, 2 to 5 percent slopes, about 9 miles north of Pasco; about 1,300 feet south and 1,100 feet west of the northeast corner of sec. 17, T. 10 N., R. 30 E.

Ap—0 to 4 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; strongly effervescent; moderately alkaline; abrupt smooth boundary.

A—4 to 8 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; very hard, firm, slightly sticky and slightly plastic; few fine roots; few fine tubular pores; violently effervescent; moderately alkaline; abrupt smooth boundary.

C1—8 to 15 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine tubular pores; slightly effervescent; moderately alkaline; abrupt wavy boundary.

C2—15 to 23 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine tubular pores; slightly effervescent; moderately alkaline; abrupt wavy boundary.

C3—23 to 35 inches; light gray (2.5Y 7/2) very fine sandy loam, grayish brown (2.5Y 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine tubular pores; slightly effervescent; moderately alkaline; abrupt smooth boundary.

C4—35 to 60 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine tubular pores; slightly effervescent; moderately alkaline.

Some pedons have an extremely gravelly coarse sand or very gravelly sand substratum at a depth of 40 to 60 inches.

The A horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 4 or 5 moist, and chroma of 2 or 3 moist or dry. It is silt loam or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 8 dry and 4 to 6 moist, and chroma of 1 to 3 moist or dry. It is silt loam or very fine sandy loam. It is moderately alkaline or strongly alkaline.

Kiona Series

The Kiona series consists of very deep, well drained soils on hillsides. These soils formed in mixed colluvium derived from basalt and loess. Slopes are 30 to 70 percent. Elevation is 400 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Kiona cobbly very fine sandy loam in an area of Kiona-Rock outcrop complex, 30 to 120 percent slopes, about 9 miles north of Basin City; about

1,050 feet east and 860 feet south of the northwest corner of sec. 12, T. 14 N., R. 29 E.

A—0 to 6 inches; brown (10YR 5/3) cobbly very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 10 percent cobbles and 10 percent gravel; 3 percent stones; slightly alkaline; gradual wavy boundary.

Bw—6 to 19 inches; brown (10YR 5/3) cobbly very fine sandy loam, dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; 15 percent cobbles, 10 percent gravel, and 5 percent stones; slightly alkaline; clear smooth boundary.

Bk—19 to 60 inches; light brownish gray (10YR 6/2) very cobbly sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 30 percent cobbles, 20 percent gravel, and 5 percent stones; strongly effervescent; moderately alkaline.

Depth to secondary carbonates is 12 to 36 inches.

The A horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist.

The Bk horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is sandy loam or silt loam with 35 to 75 percent gravel and cobbles, dominantly cobbles. It is slightly alkaline or moderately alkaline.

Koehler Series

The Koehler series consists of moderately deep, somewhat excessively drained soils on terraces. These soils formed in eolian sand over a duripan. Slopes are 0 to 15 percent. Elevation is 700 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Koehler fine sand, 0 to 15 percent slopes, about 3 miles southwest of Eltopia; about 1,600 feet west and 1,200 feet south of the northeast corner of sec. 20, T. 11 N., R. 30 E.

A—0 to 4 inches; grayish brown (10YR 5/2) fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine roots; 5 percent carbonate- and silica-coated gravel; slightly alkaline; clear smooth boundary.

Bw1—4 to 11 inches; brown (10YR 5/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many fine and very fine roots; 3 percent carbonate- and silica-coated gravel; slightly alkaline; gradual smooth boundary.

Bw2—11 to 20 inches; brown (10YR 5/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; 3 percent carbonate- and silica-coated gravel; slightly alkaline; clear smooth boundary.

Bk—20 to 35 inches; dark grayish brown (10YR 4/2) fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common fine and very fine roots; 3 percent carbonate- and silica-coated gravel; slightly effervescent; slightly alkaline; abrupt wavy boundary.

2Bkqm—35 to 45 inches; indurated, carbonate- and silica-cemented duripan.

3Bkqm—45 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. The profile is slightly alkaline or moderately alkaline.

The A horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is fine sand or loamy fine sand.

The Bw and Bk horizons have value of 5 to 7 dry and 3 to 5 moist, and they have chroma of 2 or 3 dry or moist. They are fine sand, loamy sand, or loamy fine sand. The horizons average 0 to 15 percent carbonate- and silica-coated gravel. In some pedons, the lower part of the B horizon is loamy fine sand or fine sand with 45 to 60 percent gravel.

The 3Bkqm horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Lickskillet Series

The Lickskillet series consists of shallow, well drained soils on benches, hillsides, and ridgetops. These soils formed in loess and residuum weathered from basalt. Slopes are 0 to 35 percent. Elevation is 450 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Lickskillet cobbly silt loam in an area of Roloff-Lickskillet-Rock outcrop complex, 0 to 15 percent slopes, about 6 miles southeast of Kahlotus; about 1,750 feet west and 650 feet north of the southeast corner of sec. 17, T. 13 N., R. 35 E.

- A1—0 to 2 inches; brown (10YR 5/3) cobbly silt loam, dark brown (10YR 3/3) moist; strong thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; 5 percent gravel, 10 percent cobbles, and 2 percent stones; slightly alkaline; abrupt smooth boundary.
- A2—2 to 6 inches; brown (10YR 5/3) cobbly silt loam, dark brown (10YR 3/3) moist; moderate thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; 20 percent gravel, 10 percent cobbles, and 2 percent stones; neutral; clear wavy boundary.
- Bw—6 to 13 inches; yellowish brown (10YR 5/4) very gravelly loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; common very fine roots; 35 percent gravel, 10 percent cobbles, and 5 percent stones; neutral; abrupt wavy boundary.
- 2R—13 inches; unweathered bedrock.

Thickness of the mollic epipedon is 7 to 14 inches thick. Depth to bedrock is 12 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist or dry.

The Bw horizon has chroma of 2 to 4 moist or dry. It is loam or clay loam with 35 to 60 percent cobbles and gravel.

Magallon Series

The Magallon series consist of very deep, somewhat excessively drained soils on terraces and terrace escarpments. These soils formed in glacial outwash. Slopes are 10 to 60 percent. Elevation is 600 to 1,500 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Magallon sandy loam in an area of Magallon-Stratford-Farrell complex, 10 to 30 percent slopes, about 7 miles northeast of Star School; about 950 feet east and 2,500 feet south of the northwest corner of sec. 25, T. 12 N., R. 33 E.

- A—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; common fine vesicular pores; slightly alkaline; clear smooth boundary.
- Bw—7 to 15 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; common fine vesicular pores and common very fine tubular pores; slightly alkaline; clear smooth boundary.
- 2C1—15 to 22 inches; grayish brown (10YR 5/2) loamy sand, very dark grayish brown (10YR 3/2) moist; massive; loose, nonsticky and nonplastic; common very fine and few fine roots; slightly alkaline; gradual smooth boundary.
- 2C2—22 to 60 inches; gray (10YR 5/1) coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots; slightly alkaline.

Thickness of the mollic epipedon is 7 to 10 inches. Depth to the 2C horizon is 14 to 25 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 moist or dry. It is neutral to moderately alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is slightly alkaline or moderately alkaline. It is sandy loam, fine sandy loam, or very fine sandy loam.

The 2C horizon is loamy sand, fine sand, or coarse sand. The color is variable depending on the amount of basaltic sand. The horizon is slightly alkaline to strongly alkaline.

Malaga Series

The Malaga series consists of very deep, somewhat excessively drained soils on terraces. These soils formed in glacial outwash. Slopes are 0 to 15 percent. Elevation is 700 to 900 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Malaga cobbly sandy loam, 0 to 15 percent slopes, about 4 miles northwest of Moses Lake; about 180 feet north and 980 feet west of the southeast corner of sec. 26, T. 20 N., R. 27 E.

- Ap—0 to 6 inches; brown (10YR 5/3) cobbly sandy loam, dark brown (10YR 3/3) moist; weak fine and medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; 15 percent cobbles and 10 percent gravel; slightly alkaline; abrupt smooth boundary.
- Bw1—6 to 11 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common fine tubular pores; 20 percent gravel and 10 percent cobbles; slightly alkaline; clear wavy boundary.
- Bw2—11 to 18 inches; pale brown (10YR 6/3) very gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; 45 percent gravel and 15 percent cobbles; slightly alkaline; clear wavy boundary.
- 2Bk1—18 to 22 inches; dark gray (10YR 4/1) extremely gravelly loamy sand, very

dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; few fine roots; 55 percent gravel and 20 percent cobbles; coatings of secondary carbonates on gravel and cobbles; slightly effervescent; moderately alkaline; clear irregular boundary.

2Bk2—22 to 60 inches; gray (10YR 5/1) extremely gravelly coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; few fine roots; 55 percent gravel and 15 percent cobbles; coatings of secondary carbonates on underside of gravel and cobbles; strongly effervescent; moderately alkaline.

Depth to the 2C horizon is 14 to 25 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 3 or 4 dry and 2 or 3 moist. It is slightly acid to slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is sandy loam, fine sandy loam, or loam with 15 to 65 percent gravel. It is slightly acid to slightly alkaline.

The 2Bk horizon is multicolored. It is coarse sand, sand, or loamy sand with 35 to 75 percent gravel and cobbles. It is slightly acid to moderately alkaline.

Nansene Series

The Nansene series consists of very deep, well drained soils on north-facing slopes of hills. These soils formed in loess. Slopes are 30 to 65 percent. Elevation is 800 to 1,600 feet. The average annual precipitation is about 12 inches, the average annual air temperature is 49 to 51 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Nansene silt loam in an area of Nansene-Ritzville complex, 45 to 65 percent slopes; about 4 miles northwest of Kahlottus, about 2,200 feet west and 500 feet north of the southeast corner of sec. 31, T. 14 N., R. 35 E.

A1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots throughout; neutral; clear smooth boundary.

A2—6 to 22 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium and coarse subangular blocky structure parting to moderate fine and medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; neutral; gradual smooth boundary.

Bw1—22 to 35 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; slightly alkaline; gradual smooth boundary.

Bw2—35 to 54 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure parting to weak fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; slightly alkaline; clear smooth boundary.

Bw3—54 to 60 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine to coarse roots; slightly effervescent; moderately alkaline.

Thickness of the mollic epipedon is 30 to 40 inches. Depth to secondary carbonates is more than 43 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 to 3 dry and 1 or 2 moist. It is neutral or slightly alkaline.

The Bw1 and Bw2 horizons have value of 4 or 5 dry and 2 or 3 moist, and they have chroma of 2 or 3 dry or moist. They are slightly acid to slightly alkaline.

The Bw3 horizon has value of 4 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is neutral to moderately alkaline.

Neppel Series

The Neppel series consists of very deep, well drained soils on terraces. These soils formed in alluvium over glacial outwash. Slopes are 0 to 40 percent. Elevation is 400 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Neppel very fine sandy loam, 2 to 5 percent slopes, about 0.5 mile north of Basin City; about 1,700 feet east and 2,100 feet south of the northwest corner of sec. 23, T. 13 N., R. 29 E.

Ap—0 to 7 inches; brown (10YR 5/3) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine tubular pores; slightly alkaline; clear smooth boundary.

Bw—7 to 25 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine and fine tubular pores; slightly alkaline; clear smooth boundary.

Bk—25 to 30 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; many very fine and fine tubular pores; 5 percent gravel; violently effervescent; moderately alkaline; clear wavy boundary.

2Bkq—30 to 37 inches; light gray (10YR 7/2) gravelly very fine sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm, nonsticky and nonplastic; common very fine roots; 25 percent weakly cemented durinodes and 10 percent discontinuous weakly cemented carbonate and silica material in soil matrix; about 30 percent gravel; violently effervescent; strongly alkaline; clear wavy boundary.

3Bk—37 to 60 inches; pale brown (10YR 6/3) extremely gravelly sand, brown (10YR 4/3) moist; single grain; about 75 percent gravel and 15 percent cobbles; pendants of secondary carbonates on underside of gravel; strongly effervescent; strongly alkaline.

Depth to the strongly contrasting textural stratification (3Bk horizon) is 24 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist. It is fine sandy loam or very fine sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It has weak subangular blocky or prismatic structure. It is loam, very fine sandy loam, or fine sandy loam. It is neutral to moderately alkaline.

The Bk horizon has value of 5 or 6 dry and chroma of 2 or 3 dry or moist. It is very fine sandy loam or fine sandy loam. It is neutral to moderately alkaline.

The 2Bkq horizon has hue of 10YR or 2.5Y and value of 6 or 7 dry and 4 or 5 moist. It is gravelly fine sandy loam or gravelly very fine sandy loam.

The 3Bk horizon has hue of 10YR or 2.5Y and value of 6 to 8 dry and 4 or 5 moist. It is extremely gravelly sand or extremely gravelly coarse sand.

Novark Series

The Novark series consists of very deep, well drained soils on terraces. These soils formed in loess over glacial outwash or alluvium. Slopes are 2 to 5 percent. Elevation is 400 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Novark silt loam, 2 to 5 percent slopes, about 1 mile northwest of the Pasco Airport; about 525 feet east and 125 feet north of the southwest corner of sec. 12, T. 9 N., R. 29 E.

- A—0 to 5 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; strong medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; slightly alkaline; clear smooth boundary.
- Bw—5 to 17 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; slightly alkaline; gradual wavy boundary.
- Bk—17 to 21 inches; pale brown (10YR 6/3) very fine sandy loam, dark brown (10YR 4/3) moist; weak medium prismatic structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; 5 percent gravel; threads and soft nodules of secondary carbonates; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- 2C—21 to 60 inches; very dark gray (10YR 3/1) and white (10YR 8/1) fine sand, black (10YR 2/1) and light gray (10YR 7/1) moist; single grain; loose, nonsticky and nonplastic; 5 percent gravel; moderately alkaline.

Depth to the strongly contrasting textural material (2C horizon) is 20 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 4 to 6 moist, and chroma of 1 to 3 dry or moist. It is very fine sandy loam or silt loam.

The 2C horizon is fine sand, sand, or coarse sand.

Ottmar Series

The Ottmar series consists of deep and very deep, well drained soils on terraces. These soils formed in loess over shale or siltstone. Slopes are 0 to 15 percent. Elevation is 350 to 1,100 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Ottmar silt loam, 0 to 2 percent slopes, 5 miles west of Connell; 1,100 feet west and 1,350 feet north of the southeast corner of sec. 31, T. 14 N., R. 31 E.

- Ap1—0 to 7 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; few very fine tubular pores; neutral; clear smooth boundary.
- Ap2—7 to 17 inches; yellowish brown (10YR 5/4) silt loam, dark brown (10YR 3/3) moist; moderate thick platy structure; soft, friable, slightly sticky and slightly

plastic; common very fine and few fine roots; common very fine tubular pores; neutral; clear smooth boundary.

Bw1—17 to 23 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; neutral; gradual wavy boundary.

Bw2—23 to 34 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; few very fine tubular pores; slightly alkaline; clear wavy boundary.

Bk—34 to 48 inches; white (2.5Y 8/2) silty clay loam, light olive brown (2.5Y 5/4) moist; strong medium subangular blocky structure; hard, friable, sticky and very plastic; common very fine roots; secondary carbonates segregated in root channels and on faces of peds and disseminated throughout; violently effervescent; moderately alkaline; gradual wavy boundary.

2Cr—48 to 60 inches; white (2.5Y 7/4) shale.

Depth to a paralithic contact is 40 to 60 inches or more. Depth to secondary carbonates is 16 to 47 inches.

The Ap horizon or A horizon, where present, has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry and 2 or 3 moist. It is neutral to moderately alkaline. The upper part is silt loam or clay loam, and the lower part ranges to silty clay loam.

The Bw horizon has value of 5 or 6 dry and chroma of 3 or 4 dry. It has coarse prismatic or subangular blocky structure. It is neutral to moderately alkaline. It is silty loam, silty clay loam, or clay loam.

The Bk horizon has value of 6 to 8 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry and 3 or 4 moist. It has medium or strong subangular blocky structure or is massive. It is silt loam, silty clay loam, or clay loam. It is moderately alkaline or strongly alkaline.

Prosser Series

The Prosser series consists of moderately deep, well drained soils on benches, hillsides, and ridgetops (fig. 6). These soils formed in loess and glaciofluvial deposits over basalt. Slopes are 0 to 30 percent. Elevation is 400 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Prosser silt loam in an area of Prosser-Starbuck-Rock outcrop complex, 2 to 15 percent slopes, about 1 mile east of Eltopia; about 400 feet east and 300 feet north of the southwest corner of sec. 6, T. 11 N., R. 31 E.

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; slightly alkaline; clear smooth boundary.

Bw—4 to 22 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine tubular pores; moderately alkaline; clear smooth boundary.

Bk1—22 to 29 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; violently effervescent; moderately alkaline; clear wavy boundary.

Bk2—29 to 33 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist;

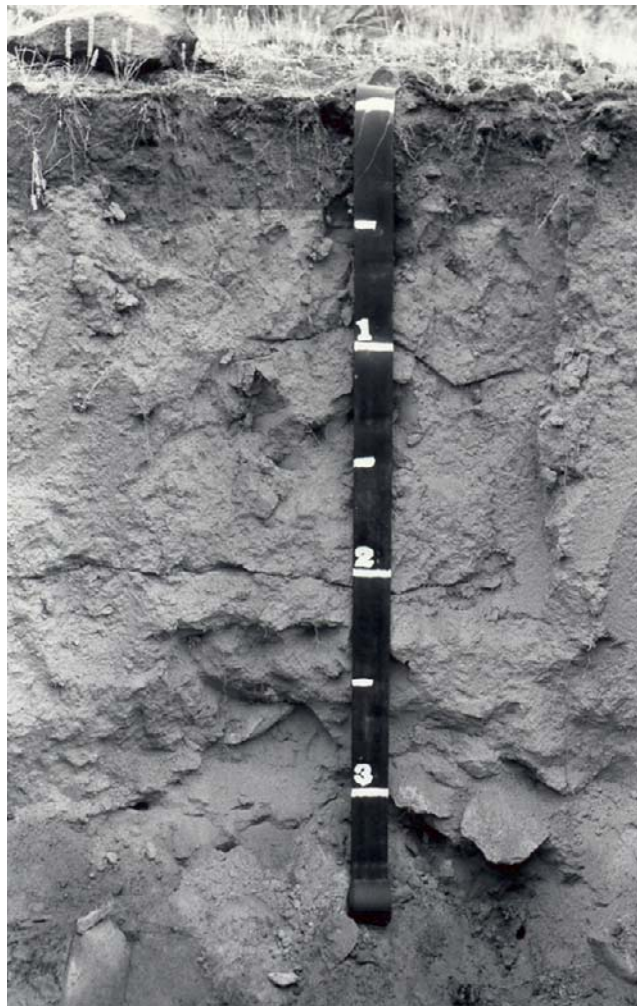


Figure 6.—Profile of a Prosser soil. The Ap horizon extends to a depth of 6 inches, and bedrock is at a depth of about 40 inches. The numerals on the tape are in feet.

massive; hard, friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; disseminated calcium carbonates and about 20 percent nodules of calcium carbonates less than 1 millimeter in diameter; violently effervescent; moderately alkaline; abrupt smooth boundary.

2R—33 inches; unweathered basalt; discontinuous coatings of carbonates and silica.

Depth to bedrock is 20 to 40 inches.

The A horizon or Ap horizon, where present, has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 2 or 3 moist or dry. It is silt loam, fine sandy loam, or very fine sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist. It is silt loam or very fine sandy loam. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 to 4 dry or moist. It is silt loam or very fine sandy loam. It has few pebbles or cobbles.

In some pedons, the only carbonate accumulation is thin caps on top of the bedrock.

Quincy Series

The Quincy series consists of deep and very deep, excessively drained soils on terraces and dunes. These soils formed in mixed sand and in mixed sand over a duripan, very gravelly alluvium, or loamy glaciolacustrine deposits. Slopes are 0 to 55 percent. Elevation is 350 to 1,200 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 53 degrees F, and the frost-free season is 150 to 200 days.

Typical pedon of Quincy loamy fine sand, 0 to 15 percent slopes, about 8 miles north of Pasco; about 1,950 feet east and 150 feet north of the southwest corner of sec. 23, T. 10 N., R. 29 E.

- A—0 to 4 inches; grayish brown (10YR 5/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; slightly alkaline; clear smooth boundary.
- C1—4 to 24 inches; light brownish gray (10YR 6/2) loamy fine sand, dark grayish brown (10YR 4/2) moist; massive; loose, nonsticky and nonplastic; common very fine roots; moderately alkaline; clear smooth boundary.
- C2—24 to 50 inches; light brownish gray (10YR 6/2) loamy fine sand, grayish brown (10YR 5/2) moist; massive; loose, nonsticky and nonplastic; common very fine roots; slightly effervescent; moderately alkaline; clear smooth boundary.
- C3—50 to 60 inches; light brownish gray (10YR 6/2) fine sand, grayish brown (10YR 5/2) moist; single grain; loose, nonsticky and nonplastic; moderately alkaline.

The profile has value of 4 to 6 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. Depth to an indurated duripan, very gravelly alluvium, or loamy glaciolacustrine deposits, where present, is 40 to 60 inches.

The A and C horizons are neutral to moderately alkaline. They are loamy fine sand or fine sand.

The duripan, where present, is indurated and overlies indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium. The very gravelly alluvium, where present, consists of fine sand, sand, or loamy fine sand with 35 to 60 percent gravel and few cobbles. The loamy glaciolacustrine deposits, where present, consist of silt loam, very fine sandy loam, or fine sandy loam that is slightly alkaline to strongly alkaline.

Quinton Series

The Quinton series consists of moderately deep, excessively drained soils on benches. These soils formed in mixed sand over basalt. Slopes are 0 to 30 percent. Elevation is 500 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Quinton loamy fine sand in an area of Quincy-Quinton-Rock outcrop complex, 0 to 30 percent slopes, about 3 miles north of Basin City; about 250 feet north and 750 feet west of the southeast corner of sec. 2, T. 13 N., R. 29 E.

- Ap—0 to 7 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common fine and few medium roots; slightly alkaline; clear smooth boundary.
- C—7 to 25 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; slightly alkaline; abrupt smooth boundary.
- 2R—25 inches; unweathered bedrock.

Depth to the bedrock is 20 to 40 inches.

The A horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist.

The C horizon has value of 4 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is fine sand or loamy fine sand. Thin discontinuous layers of silt loam or very fine sandy loam are in some areas.

Rinquin Series

The Rinquin series consists of moderately deep, somewhat excessively drained soils on terraces. These soils formed in outwash and eolian sand over weathered bedrock. Slopes are 0 to 10 percent. Elevation is 800 to 1,100 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Rinquin loamy fine sand, 0 to 10 percent slopes, about 3 miles northwest of Basin City, about 900 feet north and 100 feet east of the southwest corner of sec. 7, T. 13 N., R. 29 E.

Ap—0 to 7 inches; grayish brown (10YR 5/2) loamy fine sand, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many coarse, medium, and fine roots; many tubular pores; slightly alkaline; clear smooth boundary.

C1—7 to 21 inches; brown (10YR 5/3) loamy fine sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many tubular pores; slightly alkaline; clear smooth boundary.

C2—21 to 26 inches; light brownish gray (2.5Y 6/2) loamy fine sand, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; common tubular pores; strongly effervescent; slightly alkaline; abrupt smooth boundary.

2Cr—26 to 36 inches; white (2.5Y 8/2) weathered bedrock.

Depth to a paralithic contact is 20 to 40 inches.

The A horizon is neutral or slightly alkaline.

The C horizon is fine sand or loamy fine sand. It is slightly alkaline or moderately alkaline.

Ritzcal Series

The Ritzcal series consists of very deep, well drained soils on hills. These soils formed in loess. Slopes are 10 to 60 percent. Elevation is 900 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Ritzcal silt loam in an area of Ritzcal-Ritzville complex, 15 to 30 percent slopes, about 14 miles northeast of Eltopia; about 500 feet north and 1,500 feet west of the southeast corner of sec. 1, T. 12 N., R. 32 E.

A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many fine and very fine roots; many very fine tubular pores; violently effervescent; moderately alkaline; clear wavy boundary.

C1—4 to 28 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and nonplastic; many very fine roots; many very fine tubular pores; violently effervescent; strongly alkaline; clear wavy boundary.

C2—28 to 44 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4)

moist; massive; very hard, very firm, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; violently effervescent; strongly alkaline; clear wavy boundary.

C3—44 to 60 inches; pale brown (10YR 6/3) silt loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; violently effervescent; strongly alkaline.

The A horizon has value of 4 or 5 dry, and it has chroma of 2 or 3 dry or moist.

The C horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 to 4 dry or moist. It is moderately alkaline or strongly alkaline.

Ritzville Series

The Ritzville series consist of very deep, well drained soils on hills. These soils formed in loess and in loess over alluvium. Slopes are 0 to 65 percent. Elevation is 800 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Ritzville silt loam, 5 to 10 percent slopes, about 6 miles northeast of Eltopia; about 550 feet east and 120 feet south of the northwest corner of sec. 27, T. 12 N., R. 32 E.

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; neutral; abrupt smooth boundary.

Ap2—4 to 7 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate thick platy structure; soft, friable, slightly sticky and slightly plastic; common fine roots; many fine tubular pores; neutral; abrupt smooth boundary.

BA—7 to 12 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; common fine and very fine roots; common very fine tubular pores; slightly alkaline; clear smooth boundary.

Bw—12 to 41 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak very coarse prismatic structure; soft, friable, slightly sticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly alkaline; abrupt wavy boundary.

Bk1—41 to 49 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; less than 5 percent slightly hard nodules of secondary carbonates; strongly effervescent; moderately alkaline; clear wavy boundary.

Bk2—49 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; soft, friable, slightly sticky and slightly plastic; common very fine roots; few very fine tubular pores; filaments of secondary carbonates; strongly effervescent; moderately alkaline.

Depth to secondary carbonates is 20 to 44 inches. The mollic epipedon is 10 to 20 inches thick. Some soils are stratified at a depth of 40 to 60 inches.

The Ap and BA horizons have value of 4 or 5 dry and chroma of 2 or 3 dry or moist. They have granular or subangular blocky structure and are neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist. It has weak prismatic or subangular blocky structure. It is neutral to moderately alkaline.

The Bk horizon has value of 5 to 7 dry and 4 or 5 moist. It is silt loam, fine sandy loam, or very fine sandy loam. It is moderately alkaline or strongly alkaline.

Roloff Series

The Roloff series consists of moderately deep, well drained soils on benches, hillsides, and ridgetops. These soils formed in loess and glaciofluvial deposits over basalt. Slopes are 0 to 70 percent. Elevation is 450 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Roloff silt loam, 0 to 15 percent slopes, about 7 miles southwest of Palouse Falls; about 1,500 feet east and 2,300 feet north of the southwest corner of sec. 12, T. 13 N., R. 35 E.

- Ap—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; abrupt smooth boundary.
- AB—4 to 15 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; many very fine roots; many very fine and fine tubular pores; slightly alkaline; diffuse smooth boundary.
- Bw—15 to 26 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate coarse prismatic structure; hard, friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; abrupt wavy boundary.
- 2R—26 inches; unweathered bedrock; secondary carbonates in fractures.

Depth to bedrock is 20 to 40 inches. Thickness of the mollic epipedon is 7 to 15 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The AB horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam or very fine sandy loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is silt loam, gravelly silt loam, or very fine sandy loam. It is slightly alkaline to strongly alkaline.

Royal Series

The Royal series consists of very deep, well drained soils on terraces. These soils formed in sandy alluvium. Slopes are 0 to 30 percent. Elevation is 400 to 1,250 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Royal fine sandy loam, 0 to 2 percent slopes, about 12 miles northwest of Pasco; 1,400 feet north and 200 feet west of the southeast corner of sec. 28, T. 11 N., R. 29 E., W.M.

- A—0 to 5 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; slightly alkaline; abrupt smooth boundary.
- Bw—5 to 15 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; weak medium prismatic structure; soft, very friable, nonsticky and nonplastic; common fine roots; few very fine tubular pores; slightly alkaline; clear wavy boundary.
- Bk—15 to 30 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline; abrupt wavy boundary.

- C1—30 to 40 inches; light gray (10YR 7/2) loamy fine sand, grayish brown (10YR 5/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- C2—40 to 46 inches; light brownish gray (10YR 6/2) fine sandy loam, dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; abrupt wavy boundary.
- C3—46 to 57 inches; gray (10YR 6/1) loamy fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few fine roots; interstitial pores; strongly effervescent; strongly alkaline; abrupt wavy boundary.
- C4—57 to 70 inches; light gray (10YR 7/2) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; few very fine tubular pores; strongly effervescent; strongly alkaline.

Depth to secondary carbonates is 10 to 24 inches.

The A horizon has value of 3 to 5 moist and chroma of 2 or 3 dry or moist. It is very fine sandy loam, fine sandy loam, or loamy fine sand. It is neutral or slightly alkaline.

The Bw horizon has value of 5 to 7 dry and 3 to 6 moist, and it has chroma of 2 to 4 dry or moist. It is very fine sandy loam or fine sandy loam. It is neutral or slightly alkaline.

The Bk and C horizons have value of 5 to 7 dry and 4 to 6 moist, and they have chroma of 1 to 4 dry or moist. They are stratified very fine sandy loam to fine sand. They are moderately alkaline or strongly alkaline.

Sagehill Series

The Sagehill series consists of very deep and deep, well drained soils on terraces. These soils formed in eolian deposits over lacustrine deposits or glacial outwash. Slopes are 0 to 60 percent. Elevation is 500 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Sagehill very fine sandy loam, 2 to 5 percent slopes, about 9 miles northeast of Pasco; about 1,600 feet west and 300 feet south of the northeast corner of sec. 4, T. 9 N., R. 31 E.

- A1—0 to 3 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; many fine tubular pores; neutral; abrupt wavy boundary.
- A2—3 to 6 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; common fine tubular pores; slightly alkaline; clear wavy boundary.
- Bw—6 to 25 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine roots; common fine tubular pores; slightly alkaline; clear wavy boundary.
- 2Bk1—25 to 50 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; disseminated secondary carbonates and few rounded soft masses of secondary carbonates 2 to 5 millimeters in diameter; violently effervescent; moderately alkaline; abrupt wavy boundary.
- 2Bk2—50 to 56 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common thinly laminated lenses; disseminated secondary carbonates and seams of

secondary carbonates; violently effervescent; moderately alkaline; clear wavy boundary.

3Bk3—56 to 60 inches; light gray (10YR 7/2) very fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; disseminated secondary carbonates; violently effervescent; moderately alkaline.

Depth to secondary carbonates is 15 to 30 inches. Depth to the duripan or the gravelly substratum, where present, is 40 to 60 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is neutral to moderately alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is very fine sandy loam, loamy very fine sand, or fine sandy loam. It is neutral to moderately alkaline.

The 2Bk and 3Bk horizons have hue of 2.5Y or 10YR, value of 4 or 5 moist and 6 or 7 dry, and chroma of 2 or 3 dry or moist. They are silt loam, very fine sandy loam, or fine sandy loam. They are slightly alkaline to strongly alkaline.

The gravelly substratum, where present, consists of coarse sand with 15 to 60 percent gravel and few cobbles. The material below the duripan, where present, consists of indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Sagemoor Series

The Sagemoor series consists of very deep, well drained soils on terraces. These soils formed in loess over lacustrine deposits. Slopes are 0 to 10 percent. Elevation is 400 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Sagemoor very fine sandy loam, 0 to 2 percent slopes, about 8 miles northeast of Pasco; about 170 feet south and 60 feet west of the northeast corner of sec. 6, T. 9 N., R. 31 E.

A1—0 to 4 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine tubular pores; slightly alkaline; abrupt smooth boundary.

A2—4 to 9 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine tubular pores; slightly alkaline; clear wavy boundary.

Bw—9 to 18 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; slightly alkaline; abrupt wavy boundary.

2Bk1—18 to 26 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine tubular pores; few threads of secondary carbonates; strongly effervescent; moderately alkaline; abrupt wavy boundary.

2Bk2—26 to 32 inches; light gray (2.5Y 7/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; very hard, firm, slightly sticky and slightly plastic; few fine roots; many very fine tubular pores; many strong fine laminations; calcium carbonates coating horizontal surface of laminations and threads of calcium carbonates; violently effervescent; moderately alkaline; abrupt wavy boundary.

2C—32 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; many strong fine laminations; violently effervescent; moderately alkaline.

Depth to secondary carbonates is 14 to 24 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry and 2 to 4 moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline. It is silt loam or very fine sandy loam.

The 2Bk and 2C horizons have hue of 10YR or 2.5Y, value of 6 or 7 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. They are silt loam and very fine sandy loam with very thin strata of silt and very fine sand. They are moderately alkaline or strongly alkaline.

Schlomer Series

The Schlomer series consists of moderately deep, well drained soils on terraces. These soils formed in loess over siltstone or shale. Slopes are 0 to 35 percent. Elevation is 750 to 1,100 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Schlomer silt loam, 0 to 2 percent slopes, about 4 miles southwest of Basin City; 750 feet west and 750 feet north of the southeast corner of sec. 4, T. 12 N., R. 29 E., W.M.

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and slightly plastic; many very fine and fine roots; many fine tubular pores; slightly alkaline; clear smooth boundary.

Ap2—4 to 16 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure; soft, friable, nonsticky and slightly plastic; common very fine roots; many fine tubular pores; slightly alkaline; abrupt smooth boundary.

Bw—16 to 22 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate coarse prismatic structure; soft, friable, nonsticky and plastic; few very fine roots; few very fine tubular pores; slightly alkaline; clear wavy boundary.

2Bk—22 to 34 inches; pale yellow (2.5Y 8/4) silty clay loam, light olive brown (2.5Y 5/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine tubular pores; disseminated calcium carbonates and threads of calcium carbonates; strongly effervescent; moderately alkaline; gradual smooth boundary.

2Cr—34 to 44 inches; white (2.5Y 8/2) siltstone.

Depth to a paralithic contact is 20 to 40 inches. Depth to secondary carbonates is 15 to 26 inches.

The Ap1 horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 3 to 5 moist, and chroma of 2 or 3 dry or moist.

The Ap2 horizon has hue of 10YR or 2.5Y and value of 5 or 6 dry and 3 to 5 moist. It is silt loam or very fine sandy loam.

The Bw horizon has hue of 10YR or 2.5Y and value of 5 or 6 dry and 4 or 5 moist. It is silt loam or very fine sandy loam.

The 2Bk horizon has hue of 10YR or 2.5Y, value of 7 or 8 dry and 5 or 6 moist, and chroma of 2 to 4 dry or moist. It is silty clay loam or silty clay with 27 to 45 percent clay. It is slightly alkaline or moderately alkaline.

Shano Series

The Shano series consists of very deep, well drained soils on hills. These soils formed in loess and in loess over glaciofluvial deposits. Slopes are 0 to 60 percent. Elevation is 650 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Shano silt loam, 0 to 2 percent slopes, about 2 miles northeast of Eltopia; about 250 feet south and 200 feet west of the northeast corner of sec. 17, T. 12 N., R. 31 E.

- A—0 to 6 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; common fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; slightly alkaline; abrupt smooth boundary.
- Bw1—6 to 18 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine roots; many very fine tubular pores; slightly alkaline; clear wavy boundary.
- Bw2—18 to 28 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; moderately alkaline; clear wavy boundary.
- Bw3—28 to 42 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and few fine tubular pores; moderately alkaline; gradual wavy boundary.
- Bk—42 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; slightly effervescent; strongly alkaline.

Depth to secondary carbonates is 30 to 45 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist. It is neutral to moderately alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist. It is slightly alkaline or moderately alkaline.

The Bk horizon is silt loam or very fine sandy loam. It is slightly alkaline to strongly alkaline.

Starbuck Series

The Starbuck series consists of shallow, well drained soils on benches, hillsides, and ridgetops. These soils formed in loess over basalt. Slopes are 0 to 60 percent. Elevation is 400 to 1,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 53 degrees F, and the frost-free season is 150 to 200 days.

Typical pedon of Starbuck silt loam, 0 to 15 percent slopes, about 1 mile northeast of Eltopia; about 800 feet west and 900 feet north of the southeast corner of sec. 36, T. 12 N., R. 30 E.

- A1—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine tubular pores; neutral; abrupt smooth boundary.
- A2—3 to 9 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine and few fine tubular pores; neutral; clear smooth boundary.

Bw1—9 to 15 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; 5 percent gravel; neutral; clear wavy boundary.

Bw2—15 to 17 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, friable, slightly sticky and nonplastic; many very fine roots; common very fine tubular pores; about 10 percent gravel; slightly alkaline; abrupt smooth boundary.

2R—17 inches; unweathered basalt.

Depth to bedrock is 12 to 20 inches. The particle-size control section has 5 to 15 percent clay and averages 5 to 35 percent gravel and cobbles. It is neutral or slightly alkaline.

The A horizon has value of 5 or 6 dry and 2 to 4 moist, and it has chroma of 2 to 4 dry or moist. It is silt loam or fine sandy loam.

The Bw horizon has value of 5 or 6 dry and chroma of 3 or 4 dry or moist. It is very fine sandy loam, fine sandy loam, or silt loam.

Stratford Series

The Stratford series consists of very deep, well drained soils on terraces. These soils formed in loess mixed with alluvium over glacial outwash. Slopes are 0 to 30 percent. Elevation is 500 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Stratford very fine sandy loam in an area of Kahlotus-Stratford complex, 0 to 15 percent slopes; about 15 miles northeast of Pasco; about 400 feet east and 2,500 feet south of the northwest corner of sec. 28, T. 10 N., R. 32 E.

Ap—0 to 9 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; soft, very friable, slightly sticky and nonplastic; common fine roots; 5 percent gravel; neutral; clear wavy boundary.

Bw—9 to 19 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; weak medium and coarse prismatic structure parting to subangular blocky; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; 5 percent gravel; slightly alkaline; clear wavy boundary.

Bk1—19 to 29 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine roots; many fine tubular pores; 5 percent gravel; disseminated secondary carbonates and coatings of secondary carbonates on underside of gravel; violently effervescent; moderately alkaline; clear wavy boundary.

Bk2—29 to 31 inches; light brownish gray (2.5Y 6/2) very fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, slightly sticky and nonplastic; common very fine roots; many fine tubular pores; 10 percent gravel; disseminated calcium carbonates and coatings of calcium carbonates on underside of gravel; violently effervescent; moderately alkaline; clear wavy boundary.

Bk3—31 to 35 inches; light brownish gray (2.5Y 6/2) gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; common fine tubular pores; 30 percent gravel; disseminated calcium carbonates and coatings of calcium carbonates on underside of gravel; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bk4—35 to 60 inches; gray (10YR 5/1) extremely gravelly coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; 55 percent gravel and 10 percent cobbles; coatings of secondary carbonate on underside of gravel; moderately alkaline.

Depth to the 2Bk horizon is 20 to 36 inches. The lower part of the particle-size control section is 35 to 75 percent rock fragments. Thickness of the mollic epipedon is 10 to 20 inches.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is very fine sandy loam, silt loam, cobbly silt loam, or very stony silt loam.

The Bw horizon has value of 3 or 4 moist. It is silt loam or very fine sandy loam.

The Bk horizon has hue of 2.5Y or 10YR and value of 4 to 6 dry or moist. The upper part is very fine sandy loam, and the lower part is gravelly fine sandy loam, very gravelly sandy loam, or very gravelly silt loam.

The 2Bk horizon is very gravelly coarse sand or extremely gravelly coarse sand. It is slightly alkaline or moderately alkaline.

Tauncal Series

The Tauncal series consists of moderately deep, well drained soils on terraces and hills. These soils formed in loess and glaciofluvial deposits over a duripan. Slopes are 2 to 30 percent. Elevation is 700 to 1,150 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 55 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Tauncal very fine sandy loam, 2 to 5 percent slopes, about 4 miles west of Basin City; about 2,200 feet north and 1,250 feet east of the southwest corner of sec. 19, T. 13 N., R. 31 E.

Ap1—0 to 7 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate coarse granular structure; slightly hard, friable, nonsticky and nonplastic; many very fine roots; few very fine irregular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

Ap2—7 to 13 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; strong coarse granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine tubular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Bk1—13 to 27 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure parting to medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many very fine roots; many very fine tubular pores; many filaments and threads of secondary carbonates; violently effervescent; moderately alkaline; clear wavy boundary.

Bk2—27 to 36 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many very fine tubular pores; filaments and threads of calcium carbonates; violently effervescent; moderately alkaline; clear smooth boundary.

2Bkqm—36 to 46 inches; indurated carbonate- and silica-cemented duripan.

3Bkqm—46 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It has coarse granular or thick platy structure. It is slightly alkaline or moderately alkaline.

The Bk horizon has hue of 10YR or 2.5Y, value of 6 or 7 dry and 4 or 5 moist, and chroma of 2 or 3 dry or moist. It is very fine sandy loam or silt loam.

The 3Bkqm horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Taunton Series

The Taunton series consists of moderately deep, well drained soils on terraces. These soils formed in alluvium over an indurated duripan. Slopes are 0 to 5 percent. Elevation is 650 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Taunton very fine sandy loam, 0 to 2 percent slopes, about 2 miles west of Merrill's Corner; about 450 feet west and 350 feet south of the northeast corner of sec. 10, T. 11 N., R. 29 E.

A—0 to 6 inches; grayish brown (10YR 5/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many coarse and common fine roots; slightly alkaline; abrupt smooth boundary.

Bw—6 to 25 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; slightly alkaline; clear smooth boundary.

Bk—25 to 34 inches; light brownish gray (10YR 6/2) very fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; strongly effervescent; slightly alkaline; abrupt smooth boundary.

Bkq—34 to 38 inches; light brownish gray (2.5Y 6/2) gravelly fine sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; 20 percent carbonate- and silica-coated gravel and 5 percent carbonate- and silica-coated cobbles; violently effervescent; slightly alkaline; abrupt smooth boundary.

2Bkqm—38 to 48 inches; indurated carbonate- and silica-cemented duripan.

3Bkqm—48 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. Depth to secondary carbonates is 10 to 25 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is silt loam, very fine sandy loam, or fine sandy loam. It is slightly alkaline to strongly alkaline.

The Bk and Bkq horizons have hue of 10YR or 2.5Y. Value and chroma are similar to those of the Bw horizon. The Bk and Bkq horizons are silt loam, very fine sandy loam, or fine sandy loam. They are 10 to 50 percent rock fragments. They are slightly alkaline to strongly alkaline.

The 3Bkqm horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Timmerman Series

The Timmerman series consists of very deep, somewhat excessively drained soils on terraces. These soils formed in glacial outwash and alluvium mixed with loess in

the upper part. Slopes are 0 to 30 percent. Elevation is 350 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Timmerman fine sandy loam, 2 to 5 percent slopes, about 5 miles northwest of Pasco; about 2,210 feet east and 2,150 feet north of the southwest corner of sec. 6, T. 9 N., R. 29 E.

- Ap—0 to 5 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; neutral; abrupt smooth boundary.
- Bw—5 to 19 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak coarse prismatic structure parting to weak medium and coarse subangular blocky; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; slightly alkaline; clear smooth boundary.
- Bk1—19 to 28 inches; light brownish gray (10YR 6/2) loamy coarse sand, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine roots; slightly effervescent; strongly alkaline; clear wavy boundary.
- Bk2—28 to 60 inches; gray (10YR 6/1) coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; very slightly effervescent; moderately alkaline.

Depth to the Bk horizon and carbonates is 13 to 30 inches.

The Ap horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is neutral or slightly alkaline.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is sandy loam, coarse sandy loam, or fine sandy loam. It is neutral or slightly alkaline.

The Bk horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 1 to 3 dry or moist. It is coarse sand, loamy coarse sand, or gravelly coarse sand. The subhorizons are dominantly dark-colored basalt sand. The horizon is slightly alkaline to strongly alkaline.

Torripsamments

Torripsamments consists of very deep, excessively drained soils on terraces. These soils formed in mixed sand. Slopes are 0 to 10 percent. Elevation is 300 to 500 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Representative pedon of Torripsamments in an area of Urban land-Torripsamments complex, gently rolling, in Pasco; about 320 feet west and 990 feet south of the northeast corner of sec. 26, T. 9 N., R. 29 E.

- A1—0 to 3 inches; grayish brown (10YR 5/2) loamy fine sand, brown and dark brown (10YR 4/3) moist; weak thick platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 1 percent gravel; slightly alkaline; clear smooth boundary.
- A2—3 to 8 inches; grayish brown (10YR 5/2) loamy fine sand, brown and dark brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; 1 percent gravel; moderately alkaline; clear smooth boundary.
- C1—8 to 20 inches; grayish brown (10YR 5/2) loamy fine sand, brown and dark brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic;

common very fine and fine roots; moderately alkaline; clear smooth boundary.

C2—20 to 30 inches; grayish brown (10YR 5/2) fine sand, brown (10YR 5/3) moist; massive; loose, nonsticky and nonplastic; few very fine roots; moderately alkaline; clear smooth boundary.

C3—30 to 58 inches; grayish brown (10YR 5/2) fine sand, brown (10YR 5/3) moist; massive; loose, nonsticky and nonplastic; few very fine roots; slightly effervescent; moderately alkaline; abrupt smooth boundary.

C4—58 to 60 inches; light brownish gray (10YR 6/2) fine sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; slightly effervescent; moderately alkaline.

The profile has value of 4 to 6 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist.

The C horizon is neutral to strongly alkaline. The upper part is loamy fine sand, fine sand, or sand, and the lower part is fine sand, loamy coarse sand, or coarse sand.

Wacota Series

The Wacota series consists of very deep, well drained soils on hills, terraces, and flood plains. These soils formed in loess mixed with volcanic ash. Slopes are 0 to 40 percent. Elevation is 800 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Wacota ashy silt loam, 10 to 15 percent slopes, about 5 miles north of Kahlotus, about 300 feet east and 100 feet south of the northwest corner of sec. 9, T. 14 N., R. 34 E.

Ap1—0 to 4 inches; pale brown (10YR 6/3) ashy silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; neutral; abrupt smooth boundary.

Ap2—4 to 8 inches; pale brown (10YR 6/3) ashy silt loam, dark brown (10YR 3/3) moist; moderate thick platy structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine tubular pores; slightly alkaline; clear smooth boundary.

Bw1—8 to 19 inches; pale brown (10YR 6/3) ashy silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; slightly alkaline; gradual wavy boundary.

Bw2—19 to 24 inches; pale brown (10YR 6/3) ashy silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and slightly plastic; common very fine roots; common very fine tubular pores; slightly alkaline; clear wavy boundary.

Bw3—24 to 32 inches; light gray (10YR 7/2) ashy silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; about 30 percent tonguing of Bw2 horizon; slightly alkaline; clear smooth boundary.

2Bw—32 to 53 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; slightly alkaline; clear wavy boundary.

2Bk—53 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic;

secondary carbonates in soft masses and disseminated throughout; moderately alkaline.

These soils have a high percentage of volcanic ash (more than 60 percent) in the upper 20 to 36 inches of the profile. Depth to secondary carbonates is 44 to 60 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 1 to 3 moist or dry. It is neutral or slightly alkaline.

The Bw horizon has value of 6 or 7 dry and 3 or 4 moist, and it has chroma of 1 to 3 moist or dry. It is neutral or slightly alkaline.

The 2Bw horizon has value of 5 or 6 dry and 3 or 4 moist. It is silt loam or very fine sandy loam. It is neutral to moderately alkaline.

The 2Bk horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 3 or 4 moist or dry. It is silt loam or very fine sandy loam. It is slightly alkaline to strongly alkaline.

Wanser Series

The Wanser series consists of very deep, poorly drained soils in drainageways and depressions. These soils formed in sand derived from mixed sources. Slopes are 0 to 5 percent. Elevation is 650 to 900 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Wanser fine sand in an area of Quincy-Wanser complex, 0 to 15 percent slopes, 3,230 feet east and 600 feet north of the southwest corner of sec. 30, T. 14 N., R. 28 E.

A—0 to 4 inches; grayish brown (10YR 5/2) fine sand, dark gray (10YR 4/1) moist; single grain; soft, very friable, nonsticky and nonplastic; many very fine and fine and common medium roots; strongly alkaline; clear smooth boundary.

Cg1—4 to 28 inches; grayish brown (10YR 5/2) fine sand, very dark gray (10YR 3/1) moist; many fine and medium distinct olive (5Y 4/3) redoximorphic concentrations; single grain; loose, nonsticky and nonplastic; common very fine, fine, and medium roots; strongly alkaline; clear smooth boundary.

Cg2—28 to 60 inches; gray (5Y 6/1) fine sand, very dark gray (10YR 3/1) moist; common fine and medium faint grayish brown (10YR 5/2) redoximorphic concentrations; single grain; loose, nonsticky and nonplastic; few medium and coarse roots; strongly alkaline.

The water table is at a depth of 6 to 12 inches in November through May. Occasional flooding occurs in January through May. The profile is moderately alkaline or strongly alkaline.

The A horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 1 to 3 moist or dry.

The Cg horizon has value of 3 to 6 moist and 5 to 7 dry, and it has chroma of 1 or 2 moist or dry. It is fine sand, loamy fine sand, or sand.

Warden Series

The Warden series consists of very deep and deep, well drained soils on terraces and terrace escarpments. These soils formed in lacustrine deposits with a thin mantle of loess. Slopes are 0 to 40 percent. Elevation is 500 to 1,200 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Warden very fine sandy loam, 15 to 25 percent slopes, about

9 miles east of Pasco; about 2,500 feet east and 3,000 feet south of the northwest corner of sec. 22, T. 9 N., R. 31 E.

- A—0 to 6 inches, brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many fine roots; neutral; clear smooth boundary.
- Bw—6 to 19 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; neutral; abrupt wavy boundary.
- 2Bk1—19 to 23 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few thinly laminated lenses; common fine roots; common very fine tubular pores; secondary carbonates in seams; violently effervescent; strongly alkaline; clear smooth boundary.
- 2Bk2—23 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, light grayish brown (2.5Y 4/2) moist; massive; hard, firm, slightly sticky and slightly plastic; few thinly laminated lenses; few roots; few very fine tubular pores; threads and filaments of secondary carbonates; violently effervescent; strongly alkaline.

Depth to secondary carbonates is 15 to 36 inches. Depth to the duripan, where present, is 40 to 60 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is very fine sandy loam, fine sandy loam, or silt loam. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and chroma of 2 or 3 moist or dry. It is very fine sandy loam or silt loam. It is neutral to moderately alkaline.

The 2Bk horizon has hue of 10YR or 2.5Y, value of 6 or 7 dry and 4 or 5 moist, and chroma of 2 or 3 moist or dry. It is silt loam and very fine sandy loam to a depth of 40 inches or more. It is moderately alkaline or strongly alkaline. The material below the duripan, where present, consists of indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Wiehl Series

The Wiehl series consists of moderately deep, well drained soils on terraces and terrace escarpments. These soils formed in eolian deposits and glaciofluvial sediment over siltstone, sandstone, and shale. Slopes are 0 to 35 percent. Elevation is 400 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Typical pedon of Wiehl very fine sandy loam, 0 to 2 percent slopes; 2,550 feet east and 1,150 feet south of northwest corner of sec. 5, T. 12 N., R. 30 E., W.M.

- Ap1—0 to 6 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; clear smooth boundary.
- Ap2—6 to 14 inches; pale brown (10YR 6/3) very fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; common very fine roots; slightly alkaline; abrupt smooth boundary.
- Bw—14 to 29 inches; very pale brown (10YR 7/3) very fine sandy loam, dark brown (10YR 5/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; few very fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.
- Bk—29 to 36 inches; very pale brown (10YR 7/3) paragravelly very fine sandy loam,

dark brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, nonsticky and nonplastic; 30 percent sandstone paragravel; few very fine roots; slightly effervescent; slightly alkaline; clear smooth boundary.

2Cr—36 to 46 inches; dark brown (7.5YR 4/4) sandstone.

Depth to a paralithic contact is 20 to 40 inches.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is very fine sandy loam or fine sandy loam.

The Bw horizon has value of 5 to 7 dry and 3 to 5 moist, and it has chroma of 2 to 4 dry or moist. It is fine sandy loam, very fine sandy loam, or silt loam. It is neutral or slightly alkaline.

The Bk horizon has value of 5 to 7 dry and 3 to 6 moist, and it has chroma of 2 to 4 dry or moist. It is paragravelly very fine sandy loam, paragravelly fine sandy loam, or paragravelly silt loam. It is slightly alkaline or moderately alkaline.

Willis Series

The Willis series consists of moderately deep, well drained soils on hills. These soils formed in loess. Slopes are 5 to 15 percent. Elevation is 1,100 to 1,600 feet. The average annual precipitation is 9 to 12 inches, the average annual air temperature is 49 to 52 degrees F, and the frost-free season is 150 to 180 days.

Typical pedon of Willis silt loam, 5 to 15 percent slopes, about 7 miles west of Palouse Falls, about 100 feet west and 1,700 feet north of the southeast corner of sec. 1, T. 13 N., R. 35 E.

Ap1—0 to 4 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; gradual smooth boundary.

Ap2—4 to 10 inches; brown (10YR 5/3) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; gradual smooth boundary.

Bw—10 to 18 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse prismatic structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; slightly alkaline; gradual smooth boundary.

Bk—18 to 22 inches; pale brown (10YR 6/3) silt loam, brown and dark brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine roots; violently effervescent; moderately alkaline; abrupt wavy boundary.

2Bkqm—22 to 32 inches; indurated carbonate- and silica-cemented duripan.

3Bkqm—32 to 60 inches; stratified, indurated material with lenses of very gravelly sandy loam.

Depth to the duripan is 20 to 40 inches. Depth to secondary carbonates is 15 to 27 inches. Thickness of the mollic epipedon is 10 to 15 inches.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry. It is neutral or slightly alkaline.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 5 to 8 dry and 3 to 6 moist, and it has chroma of 1 to 4 moist or dry. It is moderately alkaline or strongly alkaline.

The 3Bkqm horizon is indurated layers of varying thickness separated by continuous and discontinuous layers of alluvium.

Winchester Series

The Winchester series consists of very deep, excessively drained soils on terraces and terrace escarpments. These soils formed in sandy alluvial and eolian sand. Slopes are 2 to 60 percent. Elevation is 350 to 1,500 feet. The average annual precipitation is 6 to 12 inches, the average annual air temperature is 49 to 53 degrees F, and the frost-free season is 150 to 200 days.

Typical pedon of Winchester loamy coarse sand, 2 to 5 percent slopes, about 2 miles northeast of Pasco; about 1,600 feet north and 200 feet west of the southeast corner of sec. 7, T. 9 N., R. 30 E.

- A—0 to 15 inches; brown (10YR 5/3) loamy coarse sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few fine roots; slightly alkaline; clear smooth boundary.
- C1—15 to 45 inches; dark gray (10YR 4/1) and gray (10YR 5/1) coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; few fine roots; moderately alkaline; gradual smooth boundary.
- C2—45 to 60 inches; gray (10YR 5/1) coarse sand, very dark gray (10YR 3/1) moist; single grain; loose, nonsticky and nonplastic; few fine roots; slightly effervescent; moderately alkaline.

The profile is 0 to 15 percent coarse fragments throughout.

The A horizon has chroma of 2 or 3 dry or moist. It is neutral or slightly alkaline.

The C horizon has hue of 7.5YR to 2.5Y, value of 4 to 7 dry and 2 to 7 moist, and chroma of 1 to 3 dry or moist. It is coarse sand or sand. It is slightly alkaline or moderately alkaline.

Xeric Torriorthents

Xeric Torriorthents consists of moderately deep to very deep, well drained soils on terrace escarpments. These soils formed in minor amounts of loess and material weathered from sandstone and siltstone. Slopes are 30 to 90 percent. Elevation is 350 to 1,000 feet. The average annual precipitation is 6 to 9 inches, the average annual air temperature is 50 to 53 degrees F, and the frost-free season is 180 to 200 days.

Representative profile of Xeric Torriorthents in an area of Badland-Xeric Torriorthents complex, very steep, about 1 mile north of Ringold; about 1,400 feet west and 2,100 feet south of the northeast corner of sec. 13, T. 11 N., R. 28 E.

- A—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many very fine tubular pores; slightly effervescent; moderately alkaline; clear wavy boundary.
- C1—3 to 12 inches; very pale brown (10YR 7/3) silt loam, dark brown (10YR 4/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine and very fine roots; many fine tubular pores; strongly effervescent; moderately alkaline; gradual wavy boundary.
- C2—12 to 40 inches; pale yellow (2.5Y 7/4) silt loam, light olive brown (2.5Y 5/4) moist; massive; soft, friable, slightly sticky and slightly plastic; common fine roots; few very fine tubular pores; violently effervescent; moderately alkaline; gradual wavy boundary.
- C3—40 to 60 inches; pale yellow (2.5Y 7/4) silt loam, light olive brown (2.5Y 5/4) moist; massive; soft, friable, moderately sticky and moderately plastic; common fine roots; few very fine tubular pores; strongly effervescent; moderately alkaline.

Depth to the paralithic contact of laminated lacustrine silt and clay is more than 60 inches. The profile is calcareous throughout.

The A horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is mildly alkaline or moderately alkaline.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 6 moist, and chroma of 2 to 4 dry or moist. It is silt loam or very fine sandy loam.

Formation of the Soils

Soil can be defined in various ways. To the geologist, soil is all loose or unconsolidated material weathered from bedrock or resulting from volcanic activity. To the engineer, soil is the unconsolidated part of the earth's surface capable of supporting construction. To the soil scientist, soil is the unconsolidated part of the earth's surface that is capable of supporting plants and has been modified by soil-forming factors.

Five major factors influence the formation of soils and determine their properties. These factors are parent material, climate, topography, living organisms, and time. Although these factors are discussed separately in this section, they all interact in the process of forming soils.

Parent Material

Parent material is the unconsolidated organic and inorganic material upon which the soil-forming factors act to produce soil. This material can be volcanic ash, decomposed organic matter, or minerals weathered from bedrock, including sand, silt, and clay.

Parent material generally is named according to the manner in which it was deposited. Material transported and deposited by wind is eolian material, and it includes sand, silt, and clay. Silty material transported and deposited by wind is loess. Stream deposits are alluvium. Material moved downslope by gravity is colluvium. Residuum is material weathered in place from bedrock. Material that is deposited by lakes or slow-moving water is lacustrine material. Material deposited by glacial streams is outwash or glaciofluvial material. Glacial lacustrine deposits consist of sediment that was deposited by temporary lakes formed by glacial waters. Pyroclastic material refers to volcanic ash. All of these types of parent material are represented in Franklin County. In fact, most of the soils in the county developed in more than one kind of parent material. A soil described as glaciolacustrine may have formed primarily from lake deposits, but it also contains eolian silt and volcanic ash.

The geologic origin of the soils in the county is complex. Over a period of several million years, lava flows covered large areas of eastern Washington. The most recent flows occurred about 6.5 million years ago. Over a period of time that extended from perhaps 10 million to 1 million years ago, uplifting of the basalt slowed and partially blocked the Columbia River. The sediment from the river became the Ringold Formation, which today can be seen exposed in the White Bluffs along the Columbia River. The Ringold Formation consists of semiconsolidated sand, silt, and clay over cemented gravel. Over millions of years, volcanic ash from the Cascade Range has accumulated in eastern Washington. The most recent ash deposits were from Mount St. Helens.

The glaciers of the Ice Age did not reach Franklin County, but the Ice Age made the greatest contributions of material that would form the soils of the county. Early glacial flooding deposited vast amounts of silt that was picked up and redeposited by wind, creating the Palouse Formation. These eolian loess deposits once covered much of the county.

Beginning as early as 100,000 years ago, glacial ice dams in Idaho and Montana formed and broke apart, sending floodwaters across eastern Washington that scoured away loess and deposited sand and gravel. The greatest floods occurred 18,000 to 12,000 years ago from the repeated filling and destruction of Glacial Lake Missoula in Montana. The floodwaters backed up at the narrow gap in the Horse Heaven Hills, called Wallula Gap, creating the huge temporary Lake Wallula. The glaciolacustrine deposits from these floods are known as the Touchet Beds. The sand and gravel deposited along the stream channels are known as the Pasco Gravel.

Catastrophic flooding of glacial meltwater during the Ice Age carved out the channeled scablands along the Palouse and Snake Rivers and in the Washtucna and Esquatzel Coulees (Campbell, 1962). The soils in these areas formed in residuum and colluvium derived from exposed basalt, in glaciofluvial and glaciolacustrine deposits, and in loess and ash deposited after the floods. These soils are as much as 40 inches deep over basalt, and they include soils such as those of the Bakeoven, Lickskillet, Starbuck, Prosser, and Roloff series. The Kiona series consists of very deep colluvial soils that formed in mixtures of basalt rubble, loess, and alluvium.

The very deep loess soils that formed in the Palouse Formation include those of the Shano, Ritzville, Nansene, Ritzcal, and Wacota series (Morrison, 1991). These soils also contain varying amounts of volcanic ash, with the Wacota series having the highest ash content. The Burke series consists of soils that formed in loess over an indurated duripan at a depth of 20 to 40 inches. The Novark series consists of soils that formed in a layer of loess 20 to 40 inches thick over alluvial gravel and sand. Soils of the Sagemoor series have a mantle of loess 14 to 24 inches thick over glaciolacustrine deposits.

The Rinquin, Schlomer, Ottmar, and Wiehl series consist of soils that formed over the Ringold Formation. The Rinquin soils formed in eolian sand. The Schlomer, Ottmar, and Wiehl soils formed in mixed loess, alluvium, and glaciolacustrine deposits. The Schlomer and Ottmar soils contain a higher percentage of silt and clay, indicating the presence of residuum derived from the underlying siltstone. Portions of the Ringold Formation are exposed in the White Bluffs. These areas do not support plant growth because of the active erosion and lack of soil moisture and thus are considered Badland. Other areas of the Ringold Formation have developed soil characteristics, but they are so variable that taxonomic classification at the series level is impractical. These areas have been classified in the broader category of Xeric Torriorthents. The Ringold Formation is subject to landslides because of the stratification of the semiconsolidated siltstone and gravel, the steep slopes, and the varying high water tables. In recent years, the addition of subsurface flows of irrigation water has dramatically increased the occurrence of landslides.

Soils of the Rinquin, Quincy, Hezel, Quinton, Wanser, Koehler, and Winchester series formed in alluvial sand that was reworked by wind into dunes and hummocks. The sand was deposited on the shores of temporary lakes formed by glacial flooding.

Many of the soils in Franklin County formed in glaciolacustrine deposits with varying amounts of reworked loess and alluvium. Soils of the Farrell, Kahlotus, Kennewick, Royal, Sagehill, Sagemoor, and Warden series are examples. These soils commonly are associated with soils that formed in alluvial sand and gravel, and they commonly are underlain by sand and gravel at varying depths. Soils of the Chedehap, Neppel, and Stratford series have sand and gravel at a depth of 20 to 40 inches.

Soils of the Alderdale and Burbank series formed primarily in alluvial sand and gravel with small amounts of loess and glaciolacustrine deposits in the upper part. Soils of the Magallon and Finley series formed largely in alluvial sand and gravel with a somewhat higher amount of loess and glaciolacustrine deposits in the upper part.

Other soils have formed an underlying duripan. Two methods may account for the formation of a duripan. In the first method, the duripan formed on the edge of an

ancient lake, where minerals were concentrated as a result of evaporation and subsequently were covered by alluvial or eolian deposits. In the second method, the duripan formed in soils rich in silicates and calcium carbonates. The carbonates and silica were leached from the upper part of the soil and precipitated out in the subsoil at the boundaries of abrupt changes in permeability to form a duripan. Characteristics that result in an abrupt change in permeability include underlying bedrock, clay layers in the soil, or abrupt changes in soil texture (where texture changes from silt and clay to coarse sand and gravel). Duripans form over many thousands of years. In some areas, the soils were eroded or scoured away, exposing the duripan, and then were reburied by modern soils. The modern soils in turn may have contributed to the thickening of the duripan. Soils of the Burke, Eltopia, Koehler, Taunton, Tauncal, and Willis series have a duripan within 20 to 40 inches of the surface.

Climate

The primary aspects of climate that affect soil formation are temperature and precipitation. Heat and moisture interact to weather minerals and promote plant growth and biological activity. Water also moves and redistributes minerals, nutrients, and organic matter through the soil profile. In the Pasco Basin, the soils formed over a period of 10,000 to 12,000 years. The Palouse Formation has been forming over a period of approximately 1 million years. It is necessary to consider not only the present climate but also past climatic conditions under which the soils have developed.

Franklin County is in the rainshadow of the Cascade Range. The precipitation increases from about 6 inches annually in the western part of the county to about 12 inches in the eastern part. Very little rain falls in summer; precipitation increases in fall, peaks in winter, and decreases in spring. Rainfall increases again in May and June before dropping off in the nearly rainless months of July and August. About 30 percent of the annual precipitation is received during the growing season, which extends from April through September.

The county is subject to strong winds from the southwest, particularly in spring and fall. Typically, the windiest period is in spring, with winds averaging about 8 miles per hour during a wind event. Windstorms with gusts of more than 50 miles per hour are not uncommon, and they can occur at any time during the year. The mean annual air temperature ranges from about 53 degrees F in the western part of the county to about 48 degrees in the eastern part. The frost-free season (32 degrees) ranges from about 200 days in the western part to about 150 days in the eastern part. The growing season (28 degrees) ranges from about 230 days in the western part to about 180 days in the eastern part. The average temperature in July is about 72.5 degrees at Connell and about 74.6 degrees at Tri-Cities. The average temperature in January is about 30.5 degrees at Connell and about 33.8 degrees at Tri-Cities. Frequent periods of freezing occur in winter, but they commonly only last a few days. The soils may be frozen for short periods to a depth of 6 to 8 inches. Warm westerly winds, called Chinook winds, together with warm rain cause rapid melting of snow and frost.

In Franklin County, moisture is a limiting factor for soil development. Most of the precipitation falls in winter, limiting the amount available for plant growth. Very little rain falls during the hottest months of July and August. The lack of moisture also limits the microbial decomposition of organic matter and the weathering of minerals. In winter, when the higher amounts of moisture are available, the cooler temperatures inhibit weathering and microbial activity. Plant growth increases as rainfall increases; therefore, the soils in the eastern part of the county, which receives more rainfall, have a higher content of organic matter in the surface layer. The grass

ecosystem in the eastern part has contributed to the thick, dark surface layer in the soils.

Water also moves clay, organic material, calcium carbonates, and silicates downward in the soil profile by the processes of eluviation and leaching. Because effective precipitation increases from west to east in the county, the soils in the eastern part are more affected by eluviation and weathering and are more developed than those in the western part. Calcium carbonates and clay are moved to a greater depth in the soil profile in the eastern part.

Wind and water erosion both have a critical effect on the formation of the soils. Much of the parent material was picked up and transported into the county by wind and water. Furthermore, wind and water have reworked the soils within the county. A continual process of deposition and erosion affect the formation of the soils. In modern times, with the advent of agriculture, soil erosion has become a serious threat to the productivity of the Nation's soils, including those in Franklin County.

In the western part of the county, where rainfall is low and the soils tend to have a coarser texture, wind erosion is a greater problem than is water erosion. The winds also tend to be stronger and more continuous in the western part. In the eastern part, where the soils are finer textured and the rainfall is higher, wind and water erosion are concerns. Rapid snowmelt, accelerated by warm winds and rain, is a major cause of erosion. This is particularly true in areas of frozen soil because the soil is unable to absorb the moisture and the snowmelt becomes runoff.

Topography

Franklin County is bordered on the west and southwest by the Columbia River and on the east and southeast by the Palouse and Snake Rivers. The two major areas of the county are the Pasco Basin in the west and the Palouse Formation in the east. Dissecting the county are the channeled scablands of the Washtucna, Esquatzel, and Koontz Coulees; the Othello Channels; and the Palouse and Snake River Canyons. The White Bluffs stretch along the east bank of the Columbia River.

The Pasco Basin consists of level to undulating plains, gravelly terraces, sand dunes, and escarpments. The plains are composed of glaciolacustrine deposits and glaciofluvial outwash. Extensive areas of gravelly terraces occur near Pasco; along the Snake River, near Dalton Lake; and in Ringold Coulee, near Basin City, trending southwest to the town of Ringold, along the Columbia River. Large areas of active sand dunes are in the center of the county, in the Juniper Dunes Wilderness Area, and in the northwest corner of the county, in the Wahluke Wildlife Area. The White Bluffs consist of exposed siltstone of the ancient Ringold Formation. Remnants of the Ringold Formation are also exposed in escarpments and terraces carved by glacial flooding, in inland areas east of the Columbia River.

The eastern part of the county is dominantly loess hills of the Palouse Formation. The hills have a pinnate drainage pattern characterized by featherlike branching of small drainageways feeding into main channels.

Channeled scabland is on large terraces in the far eastern corner of the county and in an area a few miles northwest of Mesa. Rock outcroppings, small canyons, and cliffs are common features of the scabland. Canyons and cliffs are dominant in the scabland topography in the eastern part of the county. The scabland topography northwest of Mesa has fewer canyons and cliffs. The topography in this area tends toward gently rolling to strongly rolling terraces with rock outcroppings interspersed throughout (Bretz, 1959).

Aspect, or the direction of slope, plays a role in soil formation. Slopes facing south and, to a lesser extent, those facing west typically are more droughty than slopes facing north and east. Because south- and west-facing slopes receive more sun and

are warmer, evapotranspiration occurs at a higher rate and effective precipitation is decreased. Less plant growth occurs on the south-facing slopes and thus less organic matter is incorporated into the soils. With less plant cover, these slopes also are more susceptible to erosion. In addition, with less effective precipitation, carbonates are leached to a shallower depth in the soils. The prevailing winds in the county are from the southwest, so more snow accumulates on north- and east-facing slopes than on south- and west-facing slopes. North- and east-facing slopes have a lower rate of evapotranspiration and higher effective precipitation, resulting in the accumulation of more organic matter and leaching of carbonates and clay to a greater depth in the soils.

The affects of aspect can be seen when comparing the development of the soils in the Ritzville, Ritzcal, and Nansene series. The Ritzville soils formed in loess in the 9- to 12-inch precipitation zone in the eastern part of the county. These soils have a mollic epipedon (dark humus-rich surface horizon) that is 10 to 20 inches thick and an accumulation of carbonates between depths of 20 and 44 inches. The Ritzcal soils formed in loess on southerly aspects in the 9- to 12-inch precipitation zone. These soils do not have a mollic epipedon and have an accumulation of carbonates within 10 inches of the surface. The Nansene soils formed in loess on northerly aspects in the 12- to 15-inch precipitation zone. These soils have a mollic epipedon that is 30 to 40 inches thick and an accumulation of carbonates below a depth of 43 inches.

The flood plains on the canyon and coulee floors receive drainage from surrounding hills, which includes deposition of topsoil eroded from the hills. The soils on the flood plains tend to support more plant growth and thus have more organic matter than the surrounding soils. Examples are soils of the Esquatzel and Cleman series, which have a thicker mollic epipedon and are throughout the county.

In irrigated areas, the low-lying areas may receive more irrigation water and become artificially wet. Soils of the Wanzer series are an example. Soils with poor drainage accumulate high levels of sodium, which is concentrated through evaporation in the surface layer of the soils. Halaquepts, nearly level, is an example. In recent years, overirrigation and leakage from irrigation canals have accelerated the instability of the White Bluffs and landslides have increased. The White Bluffs are subject to landslides as a result of seeps, which have been accelerated by overirrigation and canal leakage.

Living Organisms

Living organisms play a major role in soil formation, soil chemistry, and the physical nature of the soil. Lichens, mosses, and plant roots help to break down rocks to form soil material. Microorganisms, such as bacteria and fungi, break down plant and animal residue to add nutrients to the soil. Earthworms and burrowing animals churn and mix the soil, retarding the formation of horizons to a certain extent. Roots penetrate the soil and improve permeability and aeration. Roots die and decompose, adding organic matter to the soil. This is especially true of the bunchgrass ecosystem in the eastern part of the county, which produces a thick, dark surface layer. Earthworms, insects, and animals consume plants and contribute waste to the organic matter in the soil. Eventually, dead animals, like plants, decompose and are incorporated back into the soil to nourish new life.

Organic matter increases soil fertility, available water capacity, aeration, infiltration, structure, and tilth. The amount of organic matter in a soil is primarily dependent on the amount of vegetation a soil produces, which in turn is largely dependent on the amount of moisture available in the soil. In the 6- to 9-inch precipitation zone, the organic matter content in the surface layer generally is less than 1 percent. In the 9- to 12-inch precipitation zone, the organic matter content of the surface layer

commonly is 1 to 2 percent. A high content of organic matter and good stands of vegetation provide protection from soil erosion.

In modern times, humans have impacted the soil formation process through agriculture. Modern agriculture adds large amounts of chemical fertilizer to the soil, but it also increases the risk of soil erosion and decreases biological diversity. The net effect has been a decrease in organic matter, fertility, and tilth of the soils.

Franklin County is largely under a grass ecosystem. Indian ricegrass, needleandthread, and Sandberg bluegrass are on droughty soils, such as those that have a sand, loamy sand, sandy loam, or fine sandy loam texture. Bluebunch wheatgrass and Sandberg bluegrass are on medium textured soils that have an effective precipitation of 9 to 12 inches. Basin big sagebrush, Wyoming big sagebrush, and rabbitbrush are throughout the majority of the county, but sagebrush is rare in the northeastern corner of the county. A unique ecosystem exists in and around the Juniper Dunes Wilderness Area, northeast of Pasco. Western juniper grows on the sand dunes, some of which are more than 100 feet high.

The grass and shrub vegetation in the county was not sufficient to protect the volcanic ash from removal by wind, resulting in soils that are lower in content of ash than might be expected because of the proximity of the county to the Cascade Range.

Time

Time is the medium through which all of the other factors of soil formation operate. The process of soil formation begins as soon as there is parent material upon which to act. The rate of soil formation depends on the nature of the soil-forming processes already discussed. The maturity of a soil is based on its stage of development rather than the total number of years elapsed since the parent material was first exposed. For example, a soil developing in a hot, wet climate may be more developed than a soil that is much older in years but is developing in a cold, dry climate. As soils form, characteristic layers, called horizons, develop. Soils that have thicker, more distinct horizons are more mature. In addition, certain types of horizons and kinds of chemical and physical transformations are evidence of more intense soil-forming processes. For example, the weathering of minerals requires much more time and much more intense factors, primarily heat and moisture, than does the translocation of calcium carbonate. An oxic horizon, or a horizon characterized by the loss of nearly all weatherable minerals, is evidence of greater maturity than a calcic horizon, or a horizon characterized by the accumulation of calcium carbonate.

The soils in the county have been forming for the last 10,000 to 12,000 years, or since the last episode of catastrophic flooding. At that time, the soils in the channeled scablands were scoured down to basalt and the last deposits of outwash and glaciolacustrine material were laid down. Loess has been accumulating in the Palouse Formation for more than a million years. It has been estimated that 1.5 to 10.0 feet of loess have accumulated since the scabland floods. For the most part, the current soils in the county developed in this recent deposition of loess. Deep roadcuts reveal many buried soils that formed over hundreds of thousands of years. The volcanic ash in these soils originated from the eruption of Mount Mazama about 6,700 years ago and from recent eruptions of Mount St. Helens. It should be recognized that older loess as well as residuum and alluvium that survived the last glacial flooding episode are present in some of the modern soils in the county.

In addition to the relatively few number of years the soils in the county have been developing, these soils also have been forming under a fairly dry, temperate climate. The soils do not have strongly developed horizons. The soil-forming processes have resulted only in the accumulation of organic matter and the translocation of

carbonates and small amounts of clay. Soils in the eastern part of the county are more strongly developed because of the increased precipitation.

The Esquatzel and Cleman soils, which are on flood plains, receive periodic deposits of fresh material from the surrounding uplands. These young soils have only a surface layer that is rich in organic matter (A horizon) and an underlying layer of slightly altered parent material (C horizon).

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Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Andic soil properties. A collection of physical and chemical properties given in "Keys to Soil Taxonomy" that is the taxonomic criteria for the Andisol order.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Ash (volcanic). Unconsolidated, pyroclastic material that is less than 2 millimeters in all dimensions.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 2
Low	2 to 3.75
Moderate	3.75 to 5
Moderately high	5 to 7.5
High	7.5 to 10
Very high	more than 10

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many

intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Bajada. A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Basal till. Compact glacial till deposited beneath the ice.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedding system. A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte. An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Calcic horizon. An illuvial horizon in which secondary calcium carbonate or other carbonates have accumulated.

Calcium carbonate equivalent. The amount of calcium carbonate in a soil measured by treating the soil sample with hydrochloric acid (HCL). The evolved carbon dioxide (CO₂) is measured, and the amount of carbonate is then calculated as calcium carbonate (CaCO₃).

- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Catsteps.** Very small, irregular terraces on steep hillsides, especially in pasture, formed by the trampling of cattle or the slippage of saturated soil.
- Channeled scabland.** A geographic area of unique landscape features, shallow soils, and sparse vegetation. The area has elongated bedrock-controlled erosional features as a result of flooding by glacial meltwater. Many tens of feet of loess were removed by the floodwater and many areas were scoured to bedrock, leaving behind a unique pattern of channels, pools, basins, and other features.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.
- Coarse textured soil.** Sand or loamy sand.
- Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
- Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
- COLE (coefficient of linear extensibility).** See Linear extensibility.
- Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
- Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
- Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
- Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conglomerate. A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming. A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duripan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by silica with or without calcium carbonate.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

- Fallow.** Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan terrace.** A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.
- Fertility, soil.** The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Field moisture capacity.** The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope.** A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil.** Sandy clay, silty clay, or clay.
- Firebreak.** Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- Flood plain.** A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial.** Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Foothill.** A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.
- Footslope.** The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb.** Any herbaceous plant not a grass or a sedge.
- Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.
- Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.
- Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.
- Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.
- Glaciolacustrine deposits.** Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.
- Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.
- Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.
- Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.
- Gravel.** Rounded or angular fragments of rock as much as 3 inches (7.6 centimeters) in diameter. An individual piece is a pebble.
- Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or

angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Moderately cemented bedrock beneath the soil.

R layer.—Indurated bedrock beneath the soil.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential.

The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluv. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in

fields of close-growing crops or in orchards so that it flows in only one direction.
Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements.

Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Krotovinas. Irregular, tubular streaks within one layer of soil material that have been transported from another layer. They are a result of the filling of tunnels made by burrowing animals.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $\frac{1}{3}$ - or $\frac{1}{10}$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mesa. A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

- Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.
- Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.
- Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.
- Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.
- Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.
- Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.
- Mottling, soil.** Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).
- Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.
- Muck.** Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)
- Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.
- Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.
- Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)
- Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.
- Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.
- Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.
- Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of

glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *duripan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors.

Temporary flooding occurs primarily in response to precipitation and runoff.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could

penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or duripan can be excavated using a single-tooth ripping attachment mounted on a tractor with 200 to 300 draw-bar horsepower.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas that consist of cobbles, stones, and boulders, commonly at the base of mountains.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the

upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 5 percent
Moderately sloping	5 to 10 percent
Strongly sloping	10 to 15 percent
Moderately steep	15 to 30 percent
Steep	30 to 45 percent
Very steep	45 percent and higher

Classes for complex slopes are as follows:

Nearly level	0 to 2 percent
Undulating	2 to 5 percent
Gently rolling	5 to 10 percent
Rolling	10 to 15 percent
Hilly	15 to 30 percent
Steep	30 to 45 percent
Very steep	45 percent and higher

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^+ to $\text{Ca}^{++} + \text{Mg}^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and

ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Summer fallow. The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field

generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Umbric epipedon. A thick, dark-colored, humus-rich surface horizon that has low base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Weathered bedrock. Bedrock that can be excavated with a trenching machine, backhoe, small ripper, or other equipment commonly used in construction.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Connell 1 W [1690], Eltopia 8 WSW [2542], and Kennewick [4154]),
Washington)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
CONNELL 1 W											
January-----	37.4	24.6	31.0	60	-4	23	0.91	0.48	1.36	3	2.2
February----	45.7	28.7	37.2	64	2	55	0.80	0.33	1.28	3	0.7
March-----	55.9	32.8	44.3	72	17	152	0.90	0.42	1.35	3	0.1
April-----	65.0	37.5	51.3	84	23	330	0.67	0.34	0.98	2	0.0
May-----	73.8	44.0	58.9	95	29	574	0.81	0.36	1.24	2	0.0
June-----	80.9	49.9	65.4	99	37	726	0.45	0.18	0.72	1	0.0
July-----	89.0	55.3	72.1	104	41	945	0.36	0.12	0.56	1	0.0
August-----	88.4	54.5	71.5	103	41	873	0.32	0.00	0.51	0	0.0
September---	78.7	46.5	62.6	95	31	644	0.40	0.03	0.74	1	0.0
October-----	64.6	37.5	51.1	83	20	323	0.68	0.16	1.19	2	0.0
November----	47.0	31.5	39.2	67	8	84	1.05	0.54	1.55	4	0.8
December----	37.2	25.2	31.2	59	-3	24	1.19	0.58	1.67	4	1.3
Yearly:											
Average---	63.6	39.0	51.3	---	---	---				---	---
Extreme---	110	-19	---	105	-9	---				---	---
Total-----	---	---	---	---	---	4,754	8.54	6.64	9.96	26	5.2

Average number of days per year with at least 1 inch of snow on the ground: 6

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

	Temperature						Precipitation					
Month	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall	
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--			
	°F	°F	°F	°F	°F	Units	In	In	In		In	
ELTOPIA 8 WSW												
January-----	38.4	25.2	31.8	61	-1	24	1.08	0.55	1.61	4	0.8	
February----	46.4	28.8	37.6	65	1	62	0.98	0.57	1.35	3	1.9	
March-----	57.0	33.1	45.0	72	17	174	0.85	0.34	1.32	3	0.1	
April-----	64.6	37.9	51.3	82	25	339	0.76	0.33	1.19	2	0.0	
May-----	71.9	44.3	58.1	91	30	560	0.72	0.29	1.10	2	0.0	
June-----	78.6	50.4	64.5	95	37	732	0.50	0.15	0.77	1	0.0	
July-----	85.2	54.7	70.0	99	42	926	0.35	0.09	0.53	1	0.0	
August-----	84.4	54.6	69.5	99	42	915	0.36	0.00	0.53	0	0.0	
September---	76.7	48.0	62.3	92	34	668	0.40	0.00	0.75	1	0.0	
October-----	63.7	39.1	51.4	81	24	355	0.66	0.13	1.26	2	0.0	
November----	47.8	31.8	39.8	68	10	94	1.17	0.54	1.82	4	0.3	
December----	38.1	25.9	32.0	60	1	26	1.13	0.62	1.55	4	9.1	
Yearly:												
Average---	62.7	39.5	51.1	---	---	---				---	---	
Extreme---	103	-16	---	101	-7	---				---	---	
Total-----	---	---	---	---	---	4876	8.96	6.53	10.99	27	12.2	

Average number of days per year with at least 1 inch of snow on the ground: 2

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have--		Average number of growing degree days*	Average	2 years in 10 will have--		Average number of days with 0.10 inch or more	Average snowfall
				Maximum temperature higher than--	Minimum temperature lower than--			Less than--	More than--		
	°F	°F	°F	°F	°F	Units	In	In	In		In
KENNEWICK											
January-----	40.6	27.2	33.9	64	3	47	1.05	0.55	1.50	4	1.9
February----	48.0	30.3	39.2	68	6	83	0.79	0.43	1.13	2	0.4
March-----	58.4	35.5	46.9	74	21	228	0.77	0.34	1.19	2	0.0
April-----	67.1	41.3	54.2	86	28	426	0.52	0.12	0.87	1	0.0
May-----	74.9	48.2	61.5	97	35	667	0.67	0.27	1.06	2	0.0
June-----	82.4	54.6	68.5	100	43	845	0.40	0.15	0.61	1	0.0
July-----	90.0	59.8	74.9	105	47	1,081	0.25	0.03	0.43	0	0.0
August-----	89.6	59.3	74.5	105	48	1,063	0.36	0.00	0.61	1	0.0
September---	79.8	50.5	65.2	96	36	753	0.36	0.00	0.71	1	0.0
October-----	66.1	40.6	53.3	84	25	415	0.57	0.14	0.96	1	0.0
November----	50.2	34.7	42.5	71	15	142	1.08	0.46	1.66	3	0.2
December----	41.0	28.2	34.6	64	4	50	1.16	0.52	1.69	4	1.0
Yearly:											
Average	65.7	42.5	54.1	---	---	---				---	---
Extreme	110	-11	---	107	-2	---				---	---
Total	---	---	---	---	---	5,801	7.97	5.81	9.74	22	3.5

Average number of days per year with at least 1 inch of snow on the ground: 0

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Connell 1 W [1690],
 Eltopia 8 WSW [2542], and Kennewick [4154]),
 Washington)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
CONNELL 1 W			
Last freezing temperature in spring:			
1 year in 10 later than--	April 29	May 8	May 22
2 years in 10 later than--	April 18	April 30	May 16
5 years in 10 later than--	March 29	April 16	May 5
First freezing temperature in fall:			
1 year in 10 earlier than--	October 8	September 29	September 15
2 years in 10 earlier than--	October 17	October 5	September 21
5 years in 10 earlier than--	November 4	October 15	October 1

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
ELTOPIA 8 WSW			
Last freezing temperature in spring:			
1 year in 10 later than--	April 13	April 29	May 20
2 years in 10 later than--	April 4	April 22	May 13
5 years in 10 later than--	March 17	April 8	April 29
First freezing temperature in fall:			
1 year in 10 earlier than--	October 27	October 14	October 4
2 years in 10 earlier than--	November 3	October 19	October 8
5 years in 10 earlier than--	November 16	October 29	October 15

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
KENNEWICK			
Last freezing temperature in spring:			
1 year in 10 later than--	March 24	April 11	April 26
2 years in 10 later than--	March 14	April 3	April 20
5 years in 10 later than--	February 22	March 20	April 7
First freezing temperature in fall:			
1 year in 10 earlier than--	October 26	October 15	October 4
2 years in 10 earlier than--	November 5	October 24	October 10
5 years in 10 earlier than--	November 24	November 11	October 21

Table 3.--Growing Season

(Recorded in the period 1971-2000 at
Connell 1 W [1690], Eltopia 8 WSW [2542],
and Kennewick [4154]), Washington)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	<i>Days</i>	<i>Days</i>	<i>Days</i>
CONNELL 1 W			
9 years in 10	183	163	131
8 years in 10	197	172	139
5 years in 10	224	188	155
2 years in 10	251	204	171
1 year in 10	265	213	179
ELTOPIA 8 WSW			
9 years in 10	211	176	142
8 years in 10	222	185	151
5 years in 10	243	203	168
2 years in 10	265	220	185
1 year in 10	276	230	194
KENNEWICK			
9 years in 10	233	196	165
8 years in 10	245	208	175
5 years in 10	268	231	194
2 years in 10	290	254	214
1 year in 10	302	266	224

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Alderdale extremely cobbly loamy sand, 0 to 5 percent slopes-----	386	*
2	Aquents-Halaepts complex, nearly level-----	1,743	0.2
3	Badland-Xeric Torriorthents complex, very steep-----	4,767	0.6
4	Burbank loamy fine sand, 0 to 5 percent slopes-----	3,047	0.4
5	Burbank loamy fine sand, 5 to 10 percent slopes-----	136	*
6	Burbank gravelly loamy fine sand, 15 to 35 percent slopes-----	285	*
7	Burke very fine sandy loam, 0 to 2 percent slopes-----	475	*
8	Burke very fine sandy loam, 2 to 5 percent slopes-----	187	*
9	Burke silt loam, 2 to 5 percent slopes-----	15	*
10	Chedehap fine sandy loam, 0 to 2 percent slopes-----	741	*
11	Chedehap fine sandy loam, 2 to 5 percent slopes-----	950	0.1
12	Chedehap fine sandy loam, 5 to 10 percent slopes-----	97	*
13	Cleman fine sandy loam, 0 to 2 percent slopes-----	4,493	0.6
14	Eltopia very fine sandy loam, 0 to 2 percent slopes-----	1,775	0.2
15	Eltopia very fine sandy loam, 2 to 5 percent slopes-----	310	*
16	Ephrata sandy loam, 0 to 2 percent slopes-----	30	*
17	Esquatel silt loam, 0 to 2 percent slopes-----	4,889	0.6
18	Farrell loam, 0 to 5 percent slopes-----	3,746	0.5
19	Farrell loam, 5 to 10 percent slopes-----	3,141	0.4
20	Farrell loam, 10 to 15 percent slopes-----	974	0.1
21	Farrell loam, 15 to 30 percent slopes-----	1,757	0.2
22	Farrell loam, 30 to 60 percent slopes-----	703	*
23	Finley gravelly sandy loam, 5 to 10 percent slopes-----	620	*
24	Finley very fine sandy loam, 0 to 2 percent slopes-----	1,316	0.2
25	Finley very fine sandy loam, 2 to 5 percent slopes-----	1,310	0.2
26	Finley-Burbank-Starbuck complex, 0 to 10 percent slopes-----	1,019	0.1
27	Finley-Neppel complex, 0 to 10 percent slopes-----	2,645	0.3
28	Halaepts, nearly level-----	891	0.1
29	Hezel loamy fine sand, 0 to 15 percent slopes-----	12,809	1.6
30	Hezel loamy fine sand, 15 to 30 percent slopes-----	180	*
31	Hezel loamy fine sand, 30 to 60 percent slopes-----	182	*
32	Hezel loamy fine sand, cobbly substratum, 0 to 10 percent slopes-----	1,394	0.2
33	Kahlotus very fine sandy loam, 0 to 2 percent slopes-----	2,266	0.3
34	Kahlotus very fine sandy loam, 2 to 5 percent slopes-----	4,123	0.5
35	Kahlotus very fine sandy loam, 5 to 10 percent slopes-----	3,124	0.4
36	Kahlotus very fine sandy loam, 10 to 15 percent slopes-----	1,455	0.2
37	Kahlotus very fine sandy loam, 15 to 30 percent slopes-----	1,497	0.2
38	Kahlotus very fine sandy loam, 30 to 40 percent slopes-----	139	*
39	Kahlotus-Kennewick complex, 15 to 30 percent slopes-----	2,729	0.3
40	Kahlotus-Kennewick complex, 30 to 60 percent slopes-----	3,276	0.4
41	Kahlotus-Stratford complex, 0 to 15 percent slopes-----	2,144	0.3
42	Kahlotus-Stratford complex, 15 to 30 percent slopes-----	801	*
43	Kennewick silt loam, 0 to 2 percent slopes-----	1,057	0.1
44	Kennewick silt loam, 2 to 5 percent slopes-----	615	*
45	Kennewick silt loam, 5 to 10 percent slopes-----	869	0.1
46	Kennewick silt loam, 10 to 15 percent slopes-----	671	*
47	Kennewick silt loam, 15 to 35 percent slopes-----	375	*
48	Kiona-Prosser-Starbuck complex, 30 to 60 percent slopes-----	872	0.1
49	Kiona-Rock outcrop complex, 30 to 120 percent slopes-----	2,221	0.3
50	Koehler fine sand, 0 to 15 percent slopes-----	820	0.1
51	Koehler loamy fine sand, 0 to 10 percent slopes-----	52	*
52	Lickskillet-Bakeoven complex, 0 to 35 percent slopes-----	105	*
53	Magallon-Stratford-Farrell complex, 10 to 30 percent slopes-----	2,476	0.3
54	Magallon-Winchester-Farrell complex, 30 to 60 percent slopes-----	2,487	0.3
55	Malaga cobbly sandy loam, 0 to 15 percent slopes-----	25	*
56	Nansene-Ritzville complex, 45 to 65 percent slopes-----	110	*
57	Neppel fine sandy loam, 0 to 2 percent slopes-----	906	0.1
58	Neppel fine sandy loam, 2 to 5 percent slopes-----	330	*
59	Neppel fine sandy loam, 5 to 10 percent slopes-----	121	*
60	Neppel very fine sandy loam, 0 to 2 percent slopes-----	9,210	1.1
61	Neppel very fine sandy loam, 2 to 5 percent slopes-----	2,541	0.3

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
62	Neppel very fine sandy loam, 5 to 10 percent slopes-----	459	*
63	Neppel very fine sandy loam, 10 to 15 percent slopes-----	479	*
64	Neppel very fine sandy loam, 15 to 30 percent slopes-----	276	*
65	Neppel-Finley complex, 15 to 50 percent slopes-----	1,288	0.2
66	Novark silt loam, 2 to 5 percent slopes-----	1,073	0.1
67	Ottmar silt loam, 0 to 2 percent slopes-----	2,007	0.2
68	Ottmar silt loam, 2 to 5 percent slopes-----	1,933	0.2
69	Ottmar silt loam, 5 to 10 percent slopes-----	613	*
70	Ottmar silt loam, very deep, 0 to 2 percent slopes-----	127	*
71	Ottmar silt loam, very deep, 2 to 5 percent slopes-----	477	*
72	Ottmar silt loam, very deep, 5 to 10 percent slopes-----	691	*
73	Ottmar clay loam, very deep, 0 to 5 percent slopes-----	176	*
74	Ottmar clay loam, very deep, 5 to 10 percent slopes-----	245	*
75	Ottmar-Schlomer complex, 5 to 15 percent slopes-----	783	*
76	Pits-----	490	*
77	Prosser fine sandy loam, 0 to 2 percent slopes-----	41	*
78	Prosser fine sandy loam, 2 to 5 percent slopes-----	317	*
79	Prosser fine sandy loam, 5 to 10 percent slopes-----	96	*
80	Prosser silt loam, 0 to 2 percent slopes-----	2,742	0.3
81	Prosser silt loam, 2 to 5 percent slopes-----	5,707	0.7
82	Prosser silt loam, 5 to 10 percent slopes-----	1,980	0.2
83	Prosser-Starbuck-Rock outcrop complex, 2 to 15 percent slopes-----	18,092	2.2
84	Prosser-Starbuck-Rock outcrop complex, droughty, 2 to 15 percent slopes--	3,621	0.4
85	Quincy fine sand, 2 to 15 percent slopes-----	608	*
86	Quincy fine sand, 15 to 30 percent slopes-----	1,036	0.1
87	Quincy fine sand, 30 to 55 percent slopes-----	390	*
88	Quincy fine sand, moist, 0 to 15 percent slopes-----	331	*
89	Quincy loamy fine sand, 0 to 15 percent slopes-----	108,205	13.4
90	Quincy loamy fine sand, 15 to 30 percent slopes-----	4,211	0.5
91	Quincy loamy fine sand, 30 to 55 percent slopes-----	659	*
92	Quincy loamy fine sand, loamy substratum, 0 to 10 percent slopes-----	20,594	2.6
93	Quincy loamy fine sand, loamy substratum, 10 to 15 percent slopes-----	151	*
94	Quincy loamy fine sand, loamy substratum, 15 to 25 percent slopes-----	152	*
95	Quincy complex, 0 to 15 percent slopes-----	1,640	0.2
96	Quincy-Dune land complex, 5 to 40 percent slopes-----	4,858	0.6
97	Quincy-Hezel complex, 0 to 15 percent slopes-----	19,792	2.5
98	Quincy-Hezel complex, 15 to 30 percent slopes-----	1,351	0.2
99	Quincy-Hezel complex, fine sand, 15 to 30 percent slopes-----	2,102	0.3
100	Quincy-Hezel-Warden complex, 0 to 15 percent slopes-----	6,663	0.8
101	Quincy-Quinton-Rock outcrop complex, 0 to 30 percent slopes-----	4,219	0.5
102	Quincy-Timmerman complex, 0 to 15 percent slopes-----	2,076	0.3
103	Quincy-Wanser complex, 0 to 15 percent slopes-----	1,456	0.2
104	Rinquin loamy fine sand, 0 to 10 percent slopes-----	763	*
105	Ritzcal-Ritzville complex, 15 to 30 percent slopes-----	9,956	1.2
106	Ritzcal-Ritzville complex, 30 to 60 percent slopes-----	10,135	1.3
107	Ritzville silt loam, 0 to 2 percent slopes-----	5,138	0.6
108	Ritzville silt loam, 2 to 5 percent slopes-----	29,901	3.7
109	Ritzville silt loam, 5 to 10 percent slopes-----	37,877	4.7
110	Ritzville silt loam, 10 to 15 percent slopes-----	19,054	2.4
111	Ritzville silt loam, 15 to 30 percent slopes-----	37,098	4.6
112	Ritzville silt loam, 30 to 40 percent slopes-----	6,165	0.8
113	Ritzville silt loam, stratified substratum, 2 to 5 percent slopes-----	3,860	0.5
114	Ritzville silt loam, stratified substratum, 5 to 10 percent slopes-----	5,021	0.6
115	Ritzville silt loam, stratified substratum, 10 to 15 percent slopes-----	1,601	0.2
116	Ritzville silt loam, stratified substratum, 15 to 30 percent slopes-----	2,992	0.4
117	Ritzville silt loam, stratified substratum, 30 to 60 percent slopes-----	606	*
118	Ritzville-Nansene complex, 30 to 45 percent slopes-----	596	*
119	Riverwash-----	780	*
120	Roloff silt loam, 0 to 15 percent slopes-----	4,415	0.5
121	Roloff silt loam, 15 to 30 percent slopes-----	3,070	0.4
122	Roloff silt loam, 30 to 60 percent slopes-----	123	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
123	Roloff-Licksillet-Rock outcrop complex, 0 to 15 percent slopes-----	15,729	2.0
124	Roloff-Rock outcrop complex, 30 to 70 percent slopes-----	18,610	2.3
125	Roloff-Rock outcrop-Rubble land complex, 30 to 70 percent slopes-----	2,938	0.4
126	Royal loamy fine sand, 0 to 10 percent slopes-----	3,694	0.5
127	Royal fine sandy loam, 10 to 30 percent slopes-----	328	*
128	Royal fine sandy loam, 0 to 2 percent slopes-----	4,406	0.5
129	Royal fine sandy loam, 2 to 5 percent slopes-----	4,911	0.6
130	Royal fine sandy loam, 5 to 10 percent slopes-----	1,745	0.2
131	Royal very fine sandy loam, 2 to 5 percent slopes-----	10	*
132	Royal-Timmerman complex, 15 to 30 percent slopes-----	373	*
133	Sagehill very fine sandy loam, 0 to 2 percent slopes-----	17,984	2.2
134	Sagehill very fine sandy loam, 2 to 5 percent slopes-----	14,051	1.7
135	Sagehill very fine sandy loam, 5 to 10 percent slopes-----	5,028	0.6
136	Sagehill very fine sandy loam, 10 to 15 percent slopes-----	2,449	0.3
137	Sagehill very fine sandy loam, 15 to 30 percent slopes-----	2,314	0.3
138	Sagehill very fine sandy loam, cemented substratum, 0 to 2 percent slopes	514	*
139	Sagehill very fine sandy loam, cemented substratum, 2 to 5 percent slopes	150	*
140	Sagehill very fine sandy loam, gravelly substratum, 0 to 2 percent slopes	2,571	0.3
141	Sagehill very fine sandy loam, gravelly substratum, 2 to 5 percent slopes	714	*
142	Sagehill-Kennewick complex, 0 to 2 percent slopes-----	1,396	0.2
143	Sagehill-Kennewick-Shano complex, 15 to 60 percent slopes-----	2,032	0.3
144	Sagemoor very fine sandy loam, 0 to 2 percent slopes-----	1,836	0.2
145	Sagemoor very fine sandy loam, 2 to 5 percent slopes-----	2,318	0.3
146	Sagemoor very fine sandy loam, 5 to 10 percent slopes-----	458	*
147	Schlomer silt loam, 0 to 2 percent slopes-----	1,232	0.2
148	Schlomer silt loam, 2 to 5 percent slopes-----	1,443	0.2
149	Schlomer silt loam, 5 to 10 percent slopes-----	778	*
150	Schlomer silt loam, 10 to 15 percent slopes-----	319	*
151	Schlomer silt loam, 15 to 25 percent slopes-----	911	0.1
152	Shano silt loam, 0 to 2 percent slopes-----	5,255	0.7
153	Shano silt loam, 2 to 5 percent slopes-----	7,100	0.9
154	Shano silt loam, 5 to 10 percent slopes-----	3,549	0.4
155	Shano silt loam, 10 to 15 percent slopes-----	1,658	0.2
156	Shano silt loam, 15 to 25 percent slopes-----	4,360	0.5
157	Shano silt loam, 25 to 40 percent slopes-----	851	0.1
158	Shano silt loam, stratified substratum, 0 to 2 percent slopes-----	9,006	1.1
159	Shano silt loam, stratified substratum, 2 to 5 percent slopes-----	8,277	1.0
160	Shano silt loam, stratified substratum, 5 to 10 percent slopes-----	4,514	0.6
161	Shano silt loam, stratified substratum, 10 to 15 percent slopes-----	1,825	0.2
162	Shano silt loam, stratified substratum, 15 to 30 percent slopes-----	760	*
163	Shano-Kennewick complex, 15 to 30 percent slopes-----	2,318	0.3
164	Shano-Kennewick complex, 30 to 60 percent slopes-----	782	*
165	Starbuck fine sandy loam, 0 to 15 percent slopes-----	364	*
166	Starbuck silt loam, 0 to 15 percent slopes-----	3,070	0.4
167	Starbuck-Prosser complex, 0 to 15 percent slopes-----	405	*
168	Starbuck-Prosser-Finley complex, 0 to 25 percent slopes-----	7,892	1.0
169	Starbuck-Prosser-Rock outcrop complex, 15 to 30 percent slopes-----	9,795	1.2
170	Starbuck-Prosser-Rock outcrop complex, droughty, 15 to 30 percent slopes	1,612	0.2
171	Starbuck-Roloff-Rock outcrop complex, 15 to 30 percent slopes-----	11,318	1.4
172	Stratford silt loam, 0 to 5 percent slopes-----	1,737	0.2
173	Stratford silt loam, 5 to 10 percent slopes-----	1,679	0.2
174	Stratford silt loam, 15 to 30 percent slopes-----	999	0.1
175	Stratford cobbly silt loam, 0 to 15 percent slopes-----	217	*
176	Stratford very stony silt loam, 0 to 15 percent slopes-----	147	*
177	Tauncal very fine sandy loam, 2 to 5 percent slopes-----	1,077	0.1
178	Tauncal very fine sandy loam, 5 to 10 percent slopes-----	709	*
179	Tauncal very fine sandy loam, 10 to 15 percent slopes-----	181	*
180	Tauncal very fine sandy loam, 15 to 30 percent slopes-----	376	*
181	Taunton very fine sandy loam, 0 to 2 percent slopes-----	4,725	0.6
182	Taunton very fine sandy loam, 2 to 5 percent slopes-----	1,224	0.2
183	Timmerman fine sandy loam, 0 to 2 percent slopes-----	1,162	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
184	Timmerman fine sandy loam, 2 to 5 percent slopes-----	970	0.1
185	Timmerman fine sandy loam, 5 to 10 percent slopes-----	593	*
186	Urban land-Torripsamments complex, gently rolling-----	5,388	0.7
187	Wacota ashy silt loam, 0 to 2 percent slopes-----	354	*
188	Wacota ashy silt loam, 2 to 5 percent slopes-----	4,359	0.5
189	Wacota ashy silt loam, 5 to 10 percent slopes-----	3,676	0.5
190	Wacota ashy silt loam, 10 to 15 percent slopes-----	3,113	0.4
191	Wacota ashy silt loam, 15 to 30 percent slopes-----	3,140	0.4
192	Wacota ashy silt loam, 30 to 40 percent slopes-----	302	*
193	Wacota ashy silt loam, flooded, 0 to 2 percent slopes-----	1,015	0.1
194	Wacota-Ritzcal complex, 10 to 30 percent slopes-----	1,231	0.2
195	Warden very fine sandy loam, 0 to 2 percent slopes-----	8,480	1.1
196	Warden very fine sandy loam, 2 to 5 percent slopes-----	10,203	1.3
197	Warden very fine sandy loam, 5 to 10 percent slopes-----	5,515	0.7
198	Warden very fine sandy loam, 10 to 15 percent slopes-----	2,332	0.3
199	Warden very fine sandy loam, 15 to 25 percent slopes-----	2,880	0.4
200	Warden very fine sandy loam, 25 to 40 percent slopes-----	1,081	0.1
201	Warden silt loam, 0 to 2 percent slopes-----	3,782	0.5
202	Warden silt loam, 2 to 5 percent slopes-----	3,040	0.4
203	Warden silt loam, 5 to 10 percent slopes-----	1,892	0.2
204	Warden silt loam, 10 to 15 percent slopes-----	620	*
205	Warden silt loam, 15 to 25 percent slopes-----	523	*
206	Warden silt loam, 25 to 40 percent slopes-----	600	*
207	Warden silt loam, cemented substratum, 0 to 2 percent slopes-----	339	*
208	Warden silt loam, cemented substratum, 2 to 5 percent slopes-----	284	*
209	Warden silt loam, cemented substratum, 5 to 10 percent slopes-----	375	*
210	Wiehl fine sandy loam, 0 to 2 percent slopes-----	82	*
211	Wiehl fine sandy loam, 5 to 10 percent slopes-----	8	*
212	Wiehl fine sandy loam, 15 to 35 percent slopes-----	5	*
213	Wiehl very fine sandy loam, 0 to 2 percent slopes-----	862	0.1
214	Wiehl very fine sandy loam, 2 to 5 percent slopes-----	349	*
215	Wiehl-Schlomer complex, 10 to 35 percent slopes-----	1,065	0.1
216	Willis silt loam, 5 to 15 percent slopes-----	207	*
217	Winchester loamy coarse sand, 2 to 5 percent slopes-----	2,219	0.3
218	Winchester loamy coarse sand, 5 to 10 percent slopes-----	190	*
219	Xeric Torriorthents, very steep-----	457	*
220	Water-----	16,838	2.1
221	Dam-----	4	*
	Total-----	806,347	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
1: Alderdale-----	6s	---	---	---	---	---	---	---	---	---	---	---
2: Aquents-----	6w	---	---	---	---	---	---	---	---	---	---	---
Halaquepts-----	4w	---	---	---	---	---	---	---	---	---	---	---
3: Badland-----	8	---	---	---	---	---	---	---	---	---	---	---
Xeric Torriorthents	7e	---	---	---	---	---	---	---	---	---	---	---
4: Burbank-----	7e	4e	---	7.00	---	630.00	---	120.00	---	12.00	---	100.00
5: Burbank-----	7e	4e	---	7.00	---	630.00	---	120.00	---	12.00	---	100.00
6: Burbank-----	7s	---	---	---	---	---	---	---	---	---	---	---
7: Burke-----	6e	3e	---	6.00	---	700.00	---	145.00	---	15.00	---	145.00
8: Burke-----	6e	3e	---	6.00	---	700.00	---	145.00	---	15.00	---	145.00
9: Burke-----	6e	3e	---	6.00	---	700.00	---	145.00	---	15.00	---	145.00
10: Chedehap-----	6e	2e	---	8.00	---	800.00	---	150.00	---	14.00	---	120.00
11: Chedehap-----	6e	2e	---	8.00	---	800.00	---	140.00	---	14.00	---	110.00
12: Chedehap-----	6e	3e	---	8.00	---	800.00	---	130.00	---	14.00	---	110.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
13: Cleman-----	3c	1	---	7.00	---	---	---	---	---	15.00	---	110.00
14: Eltopia-----	6e	3e	---	8.00	---	800.00	---	145.00	---	---	---	120.00
15: Eltopia-----	6e	3e	---	8.00	---	800.00	---	145.00	---	---	---	120.00
16: Ephrata-----	6e	1	---	8.00	---	---	---	165.00	---	---	---	125.00
17: Esquatzel-----	3c	1	---	8.00	---	1,000.00	---	165.00	---	---	25.00	130.00
18: Farrell-----	3s	---	---	---	---	---	---	---	---	---	18.00	---
19: Farrell-----	3e	---	---	---	---	---	---	---	---	---	18.00	---
20: Farrell-----	3e	---	---	---	---	---	---	---	---	---	15.00	---
21: Farrell-----	4e	---	---	---	---	---	---	---	---	---	12.00	---
22: Farrell-----	6e	---	---	---	---	---	---	---	---	---	---	---
23: Finley-----	6e	3e	---	6.50	---	800.00	---	---	---	14.00	---	90.00
24: Finley-----	6e	3e	---	7.00	---	800.00	---	---	---	15.00	---	90.00
25: Finley-----	6e	3e	---	7.00	---	800.00	---	---	---	15.00	---	90.00
26: Finley-----	6e	3e	---	6.50	---	---	---	---	---	14.00	---	90.00
Burbank-----	7e	4e	---	7.00	---	---	---	---	---	12.00	---	100.00
Starbuck-----	6s	6s	---	5.50	---	---	---	---	---	9.00	---	55.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
27:												
Finley-----	6e	3e	---	6.50	---	800.00	---	---	---	14.00	---	90.00
Neppel-----	6e	3e	---	7.00	---	800.00	---	---	---	12.00	---	100.00
28:												
Halaguepts-----	6s	6s	---	---	---	---	---	---	3.00	5.00	---	---
29:												
Hezel-----	6e	3e	---	7.00	---	750.00	---	140.00	---	12.00	---	100.00
30:												
Hezel-----	7s	6e	---	---	---	750.00	---	---	---	12.00	---	---
31:												
Hezel-----	7e	---	---	---	---	---	---	---	---	---	---	---
32:												
Hezel-----	6e	3e	---	7.00	---	750.00	---	150.00	---	---	---	110.00
33:												
Kahlotus-----	3c	1	---	8.00	---	1,000.00	---	---	---	---	10.00	120.00
34:												
Kahlotus-----	3e	2e	---	8.00	---	1,000.00	---	---	---	---	10.00	115.00
35:												
Kahlotus-----	3e	3e	---	7.00	---	1,000.00	---	---	---	---	10.00	100.00
36:												
Kahlotus-----	3e	3e	---	6.00	---	1,000.00	---	---	---	---	10.00	---
37:												
Kahlotus-----	4e	---	---	---	---	---	---	---	---	---	10.00	---
38:												
Kahlotus-----	6e	---	---	---	---	---	---	---	---	---	---	---
39:												
Kahlotus-----	4e	---	---	---	---	---	---	---	---	---	---	---
Kennewick-----	6e	---	---	---	---	---	---	---	---	---	---	---
40:												
Kahlotus-----	6e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
40: Kennewick-----	7e	---	---	---	---	---	---	---	---	---	---	---
41: Kahlotus-----	3e	3e	---	7.00	---	---	---	---	---	---	10.00	---
Stratford-----	3e	3e	---	6.00	---	---	---	---	---	---	12.00	---
42: Kahlotus-----	4e	6e	---	---	---	---	---	---	---	---	10.00	---
Stratford-----	4e	6e	---	---	---	---	---	---	---	---	10.00	---
43: Kennewick-----	6c	2e	---	8.00	---	800.00	---	170.00	---	17.00	---	130.00
44: Kennewick-----	6e	2e	---	8.00	---	800.00	---	170.00	---	17.00	---	130.00
45: Kennewick-----	6e	3e	---	8.00	---	800.00	---	170.00	---	17.00	---	130.00
46: Kennewick-----	6e	3e	---	8.00	---	800.00	---	170.00	---	17.00	---	130.00
47: Kennewick-----	6e	6e	---	8.00	---	800.00	---	---	---	17.00	---	---
48: Kiona-----	7e	---	---	---	---	---	---	---	---	---	---	---
Prosser-----	7e	---	---	---	---	---	---	---	---	---	---	---
Starbuck-----	6e	---	---	---	---	---	---	---	---	---	---	---
49: Kiona-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
50: Koehler-----	7e	4e	---	8.00	---	800.00	---	170.00	---	---	---	130.00
51: Koehler-----	7e	4e	---	8.00	---	1,500.00	---	170.00	---	---	---	130.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
52:												
Licksillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
Bakeoven-----	7s	---	---	---	---	---	---	---	---	---	---	---
53:												
Magallon-----	4e	---	---	---	---	---	---	---	---	---	10.00	---
Stratford-----	4e	---	---	---	---	---	---	---	---	---	10.00	---
Farrell-----	4e	---	---	---	---	---	---	---	---	---	12.00	---
54:												
Magallon-----	7e	---	---	---	---	---	---	---	---	---	---	---
Winchester-----	7e	---	---	---	---	---	---	---	---	---	---	---
Farrell-----	6e	---	---	---	---	---	---	---	---	---	---	---
55:												
Malaga-----	6e	---	---	---	---	---	---	---	---	---	---	---
56:												
Nansene-----	6e	---	---	---	---	---	---	---	---	---	---	---
Ritzville-----	6e	---	---	---	---	---	---	---	---	---	---	---
57:												
Neppel-----	6e	2e	---	8.00	---	800.00	---	150.00	---	14.00	---	120.00
58:												
Neppel-----	6e	2e	---	8.00	---	800.00	---	140.00	---	14.00	---	110.00
59:												
Neppel-----	6e	3e	---	7.00	---	800.00	---	130.00	---	12.00	---	100.00
60:												
Neppel-----	6e	2e	---	8.00	---	800.00	---	150.00	---	14.00	---	120.00
61:												
Neppel-----	6e	2e	---	8.00	---	800.00	---	140.00	---	14.00	---	110.00
62:												
Neppel-----	6e	3e	---	7.00	---	800.00	---	130.00	---	12.00	---	100.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
63: Neppel-----	6e	3e	---	7.00	---	800.00	---	---	---	10.00	---	100.00
64: Neppel-----	6e	6e	---	6.50	---	800.00	---	---	---	10.00	---	---
65: Neppel-----	6e	6e	---	6.50	---	800.00	---	---	---	10.00	---	---
Finley-----	6e	6e	---	6.50	---	800.00	---	---	---	10.00	---	---
66: Novark-----	6e	2e	---	8.00	---	800.00	---	165.00	---	14.00	---	125.00
67: Ottmar-----	6c	1	---	8.00	---	1,000.00	---	145.00	---	---	---	120.00
68: Ottmar-----	6e	2e	---	8.00	---	1,000.00	---	145.00	---	---	---	120.00
69: Ottmar-----	6e	3e	---	8.00	---	1,000.00	---	---	---	---	---	---
70: Ottmar-----	6c	1	---	8.00	---	1,000.00	---	145.00	---	---	---	120.00
71: Ottmar-----	6e	2e	---	8.00	---	1,000.00	---	145.00	---	---	---	120.00
72: Ottmar-----	6e	3e	---	8.00	---	1,000.00	---	---	---	---	---	---
73: Ottmar-----	6e	2e	---	8.00	---	1,000.00	---	145.00	---	---	---	120.00
74: Ottmar-----	6e	3e	---	8.00	---	1,000.00	---	---	---	---	---	---
75: Ottmar-----	6e	3e	---	---	---	860.00	---	---	---	---	---	---
Schlomer-----	6s	3e	---	---	---	820.00	---	---	---	---	---	---
76: Pits-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
77:												
Prosser-----	6e	3e	---	7.00	---	700.00	---	120.00	---	16.00	---	100.00
78:												
Prosser-----	6e	3e	---	7.00	---	700.00	---	120.00	---	16.00	---	100.00
79:												
Prosser-----	6e	3e	---	6.00	---	700.00	---	---	---	14.00	---	---
80:												
Prosser-----	6e	2e	---	7.00	---	700.00	---	120.00	---	16.00	---	100.00
81:												
Prosser-----	6e	3e	---	7.00	---	700.00	---	120.00	---	16.00	---	100.00
82:												
Prosser-----	6e	3e	---	6.00	---	700.00	---	---	---	14.00	---	---
83:												
Prosser-----	6e	3e	---	6.00	---	700.00	---	---	---	14.00	---	---
Starbuck-----	6s	6s	---	5.50	---	500.00	---	---	---	9.00	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
84:												
Prosser-----	6e	3e	---	6.00	---	---	---	---	---	14.00	---	---
Starbuck-----	6s	6s	---	5.50	---	---	---	---	---	9.00	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
85:												
Quincy-----	7e	4e	---	---	---	---	---	---	---	---	---	---
86:												
Quincy-----	7e	6e	---	---	---	---	---	---	---	---	---	---
87:												
Quincy-----	7e	7e	---	---	---	---	---	---	---	---	---	---
88:												
Quincy-----	4e	4e	---	---	---	---	---	---	---	---	---	---
89:												
Quincy-----	7e	3e	---	7.00	---	800.00	---	140.00	---	---	---	110.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
90: Quincy-----	7e	6e	---	---	---	800.00	---	---	---	---	---	---
91: Quincy-----	7e	7e	---	---	---	---	---	---	---	---	---	---
92: Quincy-----	7e	3e	---	8.00	---	800.00	---	140.00	---	15.00	---	110.00
93: Quincy-----	7e	3e	---	6.00	---	800.00	---	140.00	---	15.00	---	100.00
94: Quincy-----	7s	6e	---	---	---	800.00	---	---	---	---	---	---
95: Quincy, cemented substratum-----	7e	3e	---	7.00	---	800.00	---	130.00	---	---	---	100.00
Quincy, very gravelly substratum-----	7e	3e	---	7.00	---	800.00	---	140.00	---	---	---	100.00
96: Quincy-----	7e	---	---	---	---	---	---	---	---	---	---	---
Dune land-----	8	---	---	---	---	---	---	---	---	---	---	---
97: Quincy-----	7e	3e	---	7.00	---	800.00	---	140.00	---	---	---	110.00
Hezel-----	6e	4e	---	7.00	---	750.00	---	140.00	---	---	---	100.00
98: Quincy-----	7e	6e	---	---	---	---	---	---	---	---	---	---
Hezel-----	7s	6e	---	---	---	---	---	---	---	---	---	---
99: Quincy-----	7e	6e	---	---	---	---	---	---	---	---	---	---
Hezel-----	6e	6e	---	---	---	---	---	---	---	---	---	---
100: Quincy-----	7e	3e	---	7.00	---	800.00	---	140.00	---	---	---	110.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
100:												
Hezel-----	6e	3e	---	7.00	---	750.00	---	140.00	---	---	---	100.00
Warden-----	6e	2e	---	8.00	---	1,000.00	---	140.00	---	---	---	110.00
101:												
Quincy-----	7e	---	---	---	---	---	---	---	---	---	---	---
Quinton-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
102:												
Quincy-----	7e	3e	---	7.00	---	800.00	---	140.00	---	---	---	110.00
Timmerman-----	6e	3e	---	8.00	---	800.00	---	130.00	---	---	---	110.00
103:												
Quincy-----	7e	---	---	---	---	---	---	---	---	---	---	---
Wanser-----	6w	---	---	---	---	---	---	---	---	---	---	---
104:												
Rinquin-----	7e	4e	---	7.00	---	700.00	---	---	---	---	---	100.00
105:												
Ritzcal-----	4e	6e	---	6.00	---	---	---	165.00	---	---	10.00	125.00
Ritzville-----	4e	6e	---	6.00	---	---	---	165.00	---	---	20.00	125.00
106:												
Ritzcal-----	6e	---	---	---	---	---	---	---	---	---	---	---
Ritzville-----	6e	---	---	---	---	---	---	---	---	---	---	---
107:												
Ritzville-----	3c	1	---	6.00	---	---	---	165.00	---	---	20.00	125.00
108:												
Ritzville-----	3e	2e	---	6.00	---	---	---	165.00	---	---	20.00	125.00
109:												
Ritzville-----	3e	3e	---	6.00	---	---	---	165.00	---	---	20.00	125.00
110:												
Ritzville-----	3e	3e	---	6.00	---	---	---	165.00	---	---	20.00	125.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
111: Ritzville-----	4e	6e	---	6.00	---	---	---	165.00	---	---	20.00	125.00
112: Ritzville-----	6e	---	---	---	---	---	---	---	---	---	18.00	---
113: Ritzville-----	3e	---	---	---	---	---	---	---	---	---	18.00	---
114: Ritzville-----	3e	---	---	---	---	---	---	---	---	---	18.00	---
115: Ritzville-----	3e	---	---	---	---	---	---	---	---	---	18.00	---
116: Ritzville-----	4e	---	---	---	---	---	---	---	---	---	12.00	---
117: Ritzville-----	6e	---	---	---	---	---	---	---	---	---	---	---
118: Ritzville-----	6e	---	---	---	---	---	---	---	---	---	---	---
Nansene-----	6e	---	---	---	---	---	---	---	---	---	---	---
119: Riverwash-----	8	---	---	---	---	---	---	---	---	---	---	---
120: Roloff-----	3e	---	---	---	---	---	---	---	---	---	12.00	---
121: Roloff-----	4e	---	---	---	---	---	---	---	---	---	12.00	---
122: Roloff-----	6e	---	---	---	---	---	---	---	---	---	---	---
123: Roloff-----	3e	---	---	---	---	---	---	---	---	---	---	---
Licksillet-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
124:												
Roloff-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
125:												
Roloff-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
Rubble land-----	8	---	---	---	---	---	---	---	---	---	---	---
126:												
Royal-----	6e	3e	---	7.00	---	800.00	---	---	---	12.00	---	100.00
127:												
Royal-----	7s	---	---	---	---	---	---	---	---	---	---	---
128:												
Royal-----	6c	1	---	8.00	---	800.00	---	---	---	14.00	---	110.00
129:												
Royal-----	6e	2e	---	8.00	---	800.00	---	---	---	14.00	---	110.00
130:												
Royal-----	6e	3e	---	7.00	---	800.00	---	---	---	14.00	---	100.00
131:												
Royal-----	6e	2e	---	8.00	---	---	---	---	---	14.00	---	110.00
132:												
Royal-----	6e	---	---	---	---	---	---	---	---	---	---	---
Timmerman-----	6e	---	---	---	---	---	---	---	---	---	---	---
133:												
Sagehill-----	6c	1	---	8.00	---	850.00	---	150.00	---	---	---	120.00
134:												
Sagehill-----	6e	2e	---	8.00	---	850.00	---	140.00	---	---	---	110.00
135:												
Sagehill-----	6e	3e	---	7.00	---	850.00	---	130.00	---	---	---	110.00
136:												
Sagehill-----	6e	3e	---	7.00	---	850.00	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
137: Sagehill-----	6e	6e	---	---	---	850.00	---	---	---	---	---	---
138: Sagehill-----	6e	1	---	8.00	---	850.00	---	150.00	---	16.00	---	120.00
139: Sagehill-----	6e	2e	---	8.00	---	850.00	---	140.00	---	16.00	---	110.00
140: Sagehill-----	6e	1	---	8.00	---	850.00	---	150.00	---	---	---	120.00
141: Sagehill-----	6e	2e	---	8.00	---	850.00	---	140.00	---	---	---	110.00
142: Sagehill-----	6e	1	---	8.00	---	850.00	---	150.00	---	---	---	120.00
Kennewick, gravelly substratum-----	6e	1	---	8.00	---	800.00	---	140.00	---	---	---	120.00
143: Sagehill-----	6e	---	---	---	---	---	---	---	---	---	---	---
Kennewick-----	6e	---	---	---	---	---	---	---	---	---	---	---
Shano-----	6e	---	---	---	---	---	---	---	---	---	---	---
144: Sagemoor-----	6c	1	---	8.00	---	800.00	---	150.00	---	14.00	---	120.00
145: Sagemoor-----	6e	2e	---	8.00	---	800.00	---	130.00	---	14.00	---	110.00
146: Sagemoor-----	6e	3e	---	7.00	---	800.00	---	120.00	---	12.00	---	110.00
147: Schlomer-----	6s	3s	---	8.00	---	840.00	---	150.00	---	17.00	---	110.00
148: Schlomer-----	6e	3e	---	8.00	---	840.00	---	140.00	---	17.00	---	110.00
149: Schlomer-----	6s	3e	---	8.00	---	820.00	---	---	---	15.00	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
150: Schlomer-----	6s	3e	---	---	---	820.00	---	---	---	15.00	---	---
151: Schlomer-----	6e	6e	---	---	---	820.00	---	---	---	15.00	---	---
152: Shano-----	6c	1	---	7.00	---	900.00	---	165.00	---	14.00	15.00	125.00
153: Shano-----	6e	2e	---	7.00	---	900.00	---	165.00	---	14.00	15.00	125.00
154: Shano-----	6e	3e	---	7.00	---	900.00	---	165.00	---	12.00	15.00	125.00
155: Shano-----	6e	3e	---	7.00	---	900.00	---	---	---	12.00	15.00	110.00
156: Shano-----	6e	6e	---	7.00	---	900.00	---	---	---	---	15.00	100.00
157: Shano-----	6e	---	---	---	---	---	---	---	---	---	---	---
158: Shano-----	6c	1	---	8.00	---	900.00	---	140.00	---	15.00	15.00	120.00
159: Shano-----	6e	2e	---	8.00	---	900.00	---	130.00	---	15.00	15.00	120.00
160: Shano-----	6e	3e	---	7.00	---	900.00	---	130.00	---	13.00	15.00	110.00
161: Shano-----	6e	3e	---	7.00	---	900.00	---	---	---	12.00	12.00	---
162: Shano-----	6e	---	---	---	---	---	---	---	---	---	10.00	---
163: Shano-----	6e	---	---	---	---	---	---	---	---	---	15.00	---
Kennewick-----	6e	---	---	---	---	---	---	---	---	---	15.00	---
164: Shano-----	7e	---	---	---	---	---	---	---	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
164: Kennewick-----	7e	---	---	---	---	---	---	---	---	---	---	---
165: Starbuck-----	6s	6s	---	5.50	---	---	---	---	---	9.00	---	55.00
166: Starbuck-----	6s	6s	---	5.50	---	---	---	---	---	9.00	---	55.00
167: Starbuck-----	6s	6s	---	5.50	---	---	---	---	---	9.00	---	55.00
Prosser-----	6e	3e	---	6.00	---	---	---	---	---	14.00	---	90.00
168: Starbuck-----	6s	6s	---	5.50	---	500.00	---	---	---	9.00	---	55.00
Prosser-----	6e	3e	---	6.00	---	700.00	---	---	---	14.00	---	90.00
Finley-----	6e	4e	---	6.50	---	800.00	---	---	---	14.00	---	90.00
169: Starbuck-----	6s	---	---	---	---	---	---	---	---	---	---	---
Prosser-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
170: Starbuck-----	6s	---	---	---	---	---	---	---	---	---	---	---
Prosser-----	6e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
171: Starbuck-----	6s	---	---	---	---	---	---	---	---	---	---	---
Roloff-----	4e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8	---	---	---	---	---	---	---	---	---	---	---
172: Stratford-----	3e	2e	---	6.00	---	---	---	---	---	15.00	12.00	100.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
173: Stratford-----	3e	3e	---	6.00	---	---	---	---	---	15.00	12.00	---
174: Stratford-----	4e	---	---	---	---	---	---	---	---	---	10.00	---
175: Stratford-----	6s	---	---	---	---	---	---	---	---	---	10.00	---
176: Stratford-----	6s	---	---	---	---	---	---	---	---	---	---	---
177: Tauncal-----	6e	3e	---	7.00	---	700.00	---	---	---	---	---	110.00
178: Tauncal-----	6e	3e	---	7.00	---	700.00	---	---	---	---	---	110.00
179: Tauncal-----	6e	3e	---	7.00	---	700.00	---	---	---	---	---	110.00
180: Tauncal-----	6e	6e	---	7.00	---	700.00	---	---	---	---	---	---
181: Taunton-----	3e	1	---	6.00	---	700.00	---	165.00	---	---	---	125.00
182: Taunton-----	3e	2e	---	6.00	---	700.00	---	165.00	---	---	---	125.00
183: Timmerman-----	6e	2e	---	8.00	---	800.00	---	150.00	---	14.00	---	120.00
184: Timmerman-----	6e	3e	---	8.00	---	800.00	---	140.00	---	14.00	---	110.00
185: Timmerman-----	6e	3e	---	8.00	---	800.00	---	130.00	---	14.00	---	110.00
186: Urban land-----	8	---	---	---	---	---	---	---	---	---	---	---
Torripsamments----	6e	---	---	---	---	---	---	---	---	---	---	---
187: Wacota-----	3c	---	---	---	---	---	---	---	---	---	15.00	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
188:												
Wacota-----	3e	---	---	---	---	---	---	---	---	---	15.00	---
189:												
Wacota-----	3e	---	---	---	---	---	---	---	---	---	15.00	---
190:												
Wacota-----	3e	---	---	---	---	---	---	---	---	---	15.00	---
191:												
Wacota-----	4e	---	---	---	---	---	---	---	---	---	15.00	---
192:												
Wacota-----	6e	---	---	---	---	---	---	---	---	---	---	---
193:												
Wacota-----	3c	---	---	---	---	---	---	---	---	---	15.00	---
194:												
Wacota-----	4e	---	---	---	---	---	---	---	---	---	15.00	---
Ritzcal-----	4e	---	---	---	---	---	---	---	---	---	10.00	---
195:												
Warden-----	6c	1	---	8.00	---	900.00	---	150.00	---	---	---	120.00
196:												
Warden-----	6e	2e	---	8.00	---	900.00	---	140.00	---	---	---	110.00
197:												
Warden-----	6e	3e	---	7.00	---	900.00	---	130.00	---	---	---	110.00
198:												
Warden-----	6e	3e	---	6.00	---	900.00	---	---	---	---	---	---
199:												
Warden-----	6e	6e	---	6.00	---	900.00	---	---	---	---	---	---
200:												
Warden-----	6e	6e	---	---	---	900.00	---	---	---	---	---	---
201:												
Warden-----	6c	1	---	8.00	---	900.00	---	150.00	---	---	---	120.00
202:												
Warden-----	6e	2e	---	8.00	---	900.00	---	140.00	---	---	---	110.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			Tons	Tons	Bu	Bu	Bu	Bu	AUM	AUM	Bu	Bu
203:												
Warden-----	6e	3e	---	7.00	---	900.00	---	130.00	---	---	---	110.00
204:												
Warden-----	6e	3e	---	6.00	---	900.00	---	---	---	---	---	---
205:												
Warden-----	6e	6e	---	6.00	---	900.00	---	---	---	---	---	---
206:												
Warden-----	6e	6e	---	---	---	900.00	---	---	---	---	---	---
207:												
Warden-----	6c	1	---	8.00	---	900.00	---	150.00	---	16.00	---	120.00
208:												
Warden-----	6e	2e	---	8.00	---	900.00	---	140.00	---	16.00	---	110.00
209:												
Warden-----	6e	3e	---	7.00	---	900.00	---	130.00	---	16.00	---	110.00
210:												
Wiehl-----	6e	3e	---	7.00	---	900.00	---	170.00	---	14.00	---	130.00
211:												
Wiehl-----	6e	3e	---	7.00	---	---	---	170.00	---	12.00	---	130.00
212:												
Wiehl-----	6e	---	---	---	---	---	---	---	---	---	---	---
213:												
Wiehl-----	6e	2e	---	7.00	---	900.00	---	170.00	---	14.00	---	130.00
214:												
Wiehl-----	6e	3e	---	7.00	---	900.00	---	170.00	---	14.00	---	130.00
215:												
Wiehl-----	6e	6e	---	6.00	---	900.00	---	---	---	10.00	---	130.00
Schlomer-----	6e	6e	---	---	---	820.00	---	---	---	15.00	---	---
216:												
Willis-----	3e	3e	---	6.00	---	---	---	---	---	15.00	12.00	---
217:												
Winchester-----	7s	3e	---	6.00	---	800.00	---	130.00	---	---	---	100.00

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay		Apples		Corn		Pasture		Winter wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<i>Tons</i>	<i>Tons</i>	<i>Bu</i>	<i>Bu</i>	<i>Bu</i>	<i>Bu</i>	<i>AUM</i>	<i>AUM</i>	<i>Bu</i>	<i>Bu</i>
218: Winchester-----	7s	4e	---	6.00	---	800.00	---	130.00	---	---	---	100.00
219: Xeric Torriorthents	7e	---	---	---	---	---	---	---	---	---	---	---
220: Water-----	8	---	---	---	---	---	---	---	---	---	---	---
221: Dam-----	8	---	---	---	---	---	---	---	---	---	---	---

Table 6.--Prime Farmland and Other Important Farmland

(Only the soils considered prime farmland or other important farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland or other important farmland)

Map symbol	Soil name	Farmland classification
7	Burke very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
8	Burke very fine sandy loam, 2 to 5 percent slopes-----	Farmland of statewide importance
9	Burke silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
10	Chedehap fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
11	Chedehap fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
12	Chedehap fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
13	Cleman fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
14	Eltopia very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
15	Eltopia very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
16	Ephrata sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
17	Esquatzel silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
18	Farrell loam, 0 to 5 percent slopes-----	Prime farmland if irrigated
19	Farrell loam, 5 to 10 percent slopes-----	Farmland of statewide importance
20	Farrell loam, 10 to 15 percent slopes-----	Farmland of statewide importance
23	Finley gravelly sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
24	Finley very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
25	Finley very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
26	Finley-Burbank-Starbuck complex, 0 to 10 percent slopes-----	Farmland of statewide importance
27	Finley-Neppel complex, 0 to 10 percent slopes-----	Farmland of statewide importance
29	Hazel loamy fine sand, 0 to 15 percent slopes-----	Farmland of statewide importance
32	Hazel loamy fine sand, cobbly substratum, 0 to 10 percent slopes---	Farmland of statewide importance
33	Kahlotus very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
34	Kahlotus very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
35	Kahlotus very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
36	Kahlotus very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
41	Kahlotus-Stratford complex, 0 to 15 percent slopes-----	Farmland of statewide importance
43	Kennewick silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
44	Kennewick silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
45	Kennewick silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
46	Kennewick silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
55	Malaga cobbly sandy loam, 0 to 15 percent slopes-----	Farmland of statewide importance
57	Neppel fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
58	Neppel fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
59	Neppel fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
60	Neppel very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
61	Neppel very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
62	Neppel very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
63	Neppel very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
66	Novark silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
67	Ottmar silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
68	Ottmar silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
69	Ottmar silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
70	Ottmar silt loam, very deep, 0 to 2 percent slopes-----	Prime farmland if irrigated
71	Ottmar silt loam, very deep, 2 to 5 percent slopes-----	Prime farmland if irrigated
72	Ottmar silt loam, very deep, 5 to 10 percent slopes-----	Farmland of statewide importance
73	Ottmar clay loam, very deep, 0 to 5 percent slopes-----	Prime farmland if irrigated
74	Ottmar clay loam, very deep, 5 to 10 percent slopes-----	Farmland of statewide importance
75	Ottmar-Schlomer complex, 5 to 15 percent slopes-----	Farmland of statewide importance
77	Prosser fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
78	Prosser fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
79	Prosser fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
80	Prosser silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
81	Prosser silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
82	Prosser silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
88	Quincy fine sand, moist, 0 to 15 percent slopes-----	Farmland of statewide importance
89	Quincy loamy fine sand, 0 to 15 percent slopes-----	Farmland of statewide importance
92	Quincy loamy fine sand, loamy substratum, 0 to 10 percent slopes---	Farmland of statewide importance
93	Quincy loamy fine sand, loamy substratum, 10 to 15 percent slopes--	Farmland of statewide importance
95	Quincy complex, 0 to 15 percent slopes-----	Farmland of statewide importance

Table 6.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
97	Quincy-Hezel complex, 0 to 15 percent slopes-----	Farmland of statewide importance
100	Quincy-Hezel-Warden complex, 0 to 15 percent slopes-----	Farmland of statewide importance
102	Quincy-Timmerman complex, 0 to 15 percent slopes-----	Farmland of statewide importance
107	Ritzville silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
108	Ritzville silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
109	Ritzville silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
110	Ritzville silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
113	Ritzville silt loam, stratified substratum, 2 to 5 percent slopes--	Prime farmland if irrigated
114	Ritzville silt loam, stratified substratum, 5 to 10 percent slopes-----	Farmland of statewide importance
115	Ritzville silt loam, stratified substratum, 10 to 15 percent slopes-----	Farmland of statewide importance
120	Roloff silt loam, 0 to 15 percent slopes-----	Farmland of statewide importance
123	Roloff-Licksillet-Rock outcrop complex, 0 to 15 percent slopes----	Farmland of statewide importance
126	Royal loamy fine sand, 0 to 10 percent slopes-----	Farmland of statewide importance
128	Royal fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
129	Royal fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
130	Royal fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
131	Royal very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
133	Sagehill very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
134	Sagehill very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
135	Sagehill very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
136	Sagehill very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
138	Sagehill very fine sandy loam, cemented substratum, 0 to 2 percent slopes-----	Prime farmland if irrigated
139	Sagehill very fine sandy loam, cemented substratum, 2 to 5 percent slopes-----	Prime farmland if irrigated
140	Sagehill very fine sandy loam, gravelly substratum, 0 to 2 percent slopes-----	Prime farmland if irrigated
141	Sagehill very fine sandy loam, gravelly substratum, 2 to 5 percent slopes-----	Prime farmland if irrigated
142	Sagehill-Kennewick complex, 0 to 2 percent slopes-----	Prime farmland if irrigated
144	Sagemoor very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
145	Sagemoor very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
146	Sagemoor very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
147	Schlomer silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
148	Schlomer silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
149	Schlomer silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
150	Schlomer silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
152	Shano silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
153	Shano silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
154	Shano silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
155	Shano silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
158	Shano silt loam, stratified substratum, 0 to 2 percent slopes-----	Prime farmland if irrigated
159	Shano silt loam, stratified substratum, 2 to 5 percent slopes-----	Prime farmland if irrigated
160	Shano silt loam, stratified substratum, 5 to 10 percent slopes-----	Farmland of statewide importance
161	Shano silt loam, stratified substratum, 10 to 15 percent slopes-----	Farmland of statewide importance
172	Stratford silt loam, 0 to 5 percent slopes-----	Prime farmland if irrigated
173	Stratford silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
177	Tauncal very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
178	Tauncal very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
179	Tauncal very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
181	Taunton very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
182	Taunton very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
183	Timmerman fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
184	Timmerman fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
185	Timmerman fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
187	Wacota ashy silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
188	Wacota ashy silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
189	Wacota ashy silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
190	Wacota ashy silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
193	Wacota ashy silt loam, flooded, 0 to 2 percent slopes-----	Prime farmland if irrigated
195	Warden very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated

Table 6.--Prime Farmland and Other Important Farmland--Continued

Map symbol	Soil name	Farmland classification
196	Warden very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
197	Warden very fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
198	Warden very fine sandy loam, 10 to 15 percent slopes-----	Farmland of statewide importance
201	Warden silt loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
202	Warden silt loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
203	Warden silt loam, 5 to 10 percent slopes-----	Farmland of statewide importance
204	Warden silt loam, 10 to 15 percent slopes-----	Farmland of statewide importance
207	Warden silt loam, cemented substratum, 0 to 2 percent slopes-----	Prime farmland if irrigated
208	Warden silt loam, cemented substratum, 2 to 5 percent slopes-----	Prime farmland if irrigated
209	Warden silt loam, cemented substratum, 5 to 10 percent slopes-----	Farmland of statewide importance
210	Wiehl fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
211	Wiehl fine sandy loam, 5 to 10 percent slopes-----	Farmland of statewide importance
213	Wiehl very fine sandy loam, 0 to 2 percent slopes-----	Prime farmland if irrigated
214	Wiehl very fine sandy loam, 2 to 5 percent slopes-----	Prime farmland if irrigated
216	Willis silt loam, 5 to 15 percent slopes-----	Farmland of statewide importance

Table 7.--Rangeland Productivity and Characteristic Plant Communities

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
1:						
Alderdale-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
2:						
Aquents-----	Wet Alkali Meadow 6-9 Pz (R007XY603WA)	4,000	3,000	2,500	Sedge-----	26
					Basin wildrye-----	18
					Inland saltgrass-----	18
					Tufted hairgrass-----	17
					Alkali cordgrass-----	5
					Cattail-----	5
					Rush-----	5
					Reed canarygrass-----	2
					Rose-----	2
					Willow-----	2
Halaquepts-----	Alkali Bottom 6-9 Pz (R007XY401WA)	1,800	1,500	1,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	10
					Sandberg bluegrass-----	5
					Alkali cordgrass-----	5
					Basin big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Antelope bitterbrush-----	2
					Cinquefoil-----	2
					Spiny hopsage-----	1
3:						
Badland-----	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
3: Xeric Torriorthents-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
4: Burbank-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
5: Burbank-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
6: Burbank-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
7: Burke-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
8: Burke-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
9: Burke-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
10: Chedehap-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
11: Chedehap-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
12: Chedehap-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
13: Cleman-----	Loamy Bottom 6-9 Pz (R007XY402WA)	2,500	2,000	1,000	Basin wildrye-----	50
					Bluebunch wheatgrass-----	30
					Sandberg bluegrass-----	5
					Basin big sagebrush-----	5
					Buckwheat-----	5
					Thurber needlegrass-----	3
					Antelope bitterbrush-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
14: Eltopia-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
15: Eltopia-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
16: Ephrata-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
17: Esquatzel-----	Loamy Bottom 6-9 Pz (R007XY402WA)	2,500	2,000	1,000	Basin wildrye----- Bluebunch wheatgrass----- Sandberg bluegrass----- Basin big sagebrush----- Buckwheat----- Thurber needlegrass----- Antelope bitterbrush-----	50 30 5 5 5 3 2
18: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
19: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
20: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
21: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
22: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
23: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
24: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
25: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
26: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
Burbank-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
27: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
28: Halaquepts-----	Alkali Bottom 6-9 Pz (R007XY401WA)	1,800	1,500	1,000	Basin wildrye-----	40
					Inland saltgrass-----	20
					Black greasewood-----	10
					Sandberg bluegrass-----	5
					Alkali cordgrass-----	5
					Basin big sagebrush-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	5
					Antelope bitterbrush-----	2
					Cinquefoil-----	2
					Spiny hopsage-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
29: Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
30: Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
31: Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
32: Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
33: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
34: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
35: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
36: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
37: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
38: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
39:						
Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat-----	45
					Bluebunch wheatgrass-----	25
					Needleandthread-----	10
					Indian ricegrass-----	5
					Sandberg bluegrass-----	5
					Buckwheat-----	3
					Spiny hopsage-----	3
					Big sagebrush-----	2
					Fleabane-----	1
					Milkvetch-----	1
40:						
Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
40: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1
41: Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
42:						
Kahlotus-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
43:						
Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat-----	45
					Bluebunch wheatgrass-----	25
					Needleandthread-----	10
					Indian ricegrass-----	5
					Sandberg bluegrass-----	5
					Buckwheat-----	3
					Spiny hopsage-----	3
					Big sagebrush-----	2
					Fleabane-----	1
					Milkvetch-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
44: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1
45: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1
46: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
47: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1
48: Kiona-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
48: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1
49: Kiona-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Rock outcrop-----	---	---	---	---	---	---
50: Koehler-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
51: Koehler-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
52: Lickskillet-----	Dry Stony 9-15 Pz (R008XY201WA)	550	450	300	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Antelope bitterbrush----- Arrowleaf balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Threadleaf sedge----- Hood's phlox----- Longleaf phlox----- Lupine----- Narrowleaf goldenweed----- Fleabane----- Milkvetch-----	41 10 5 5 5 5 5 5 5 4 2 2 2 2 1 1
Bakeoven-----	Very Shallow 6-9 Pz (R007XY301WA)	300	200	100	Sandberg bluegrass----- Stiff sagebrush----- Thymeleaf buckwheat----- Hood's phlox----- Hooker's balsamroot----- Bluebunch wheatgrass----- Bottlebrush squirreltail----- Narrowleaf goldenweed----- Rock buckwheat----- Bitterroot-----	40 18 10 5 5 5 5 5 5 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
53: Magallon-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
53: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
54: Magallon-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1
Winchester-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
54: Farrell-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
55: Malaga-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
56: Nansene-----	Cool Loamy 9-15 Pz (R008XY103WA)	1,200	1,000	800	Idaho fescue-----	48
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Balsamroot-----	2
					Big sagebrush-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Phlox-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
56: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
57: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
58: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
59: Neppel-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
60: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
61: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
62: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
63: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
64: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
65: Neppel-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
66: Novark-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
67: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
68: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
69: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
70: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
71: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
72: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
73: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
74: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
75: Ottmar-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
75: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
76: Pits-----	---	---	---	---	---	---
77: Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
78: Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
79: Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
80: Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
81: Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
82: Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
83:						
Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
84: Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Narrowleaf goldenweed----- Hood's phlox----- Balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Gray rabbitbrush----- Milkvetch----- Needleandthread----- Fleabane----- Lupine-----	56 8 5 5 5 5 2 2 2 2 2 2 2 1 1
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
85: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
86: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
87: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
88: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
89: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
90: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
91: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
92: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
93: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
94: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
95: Quincy, cemented substratum-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
95: Quincy, very gravelly substratum-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1
96: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Dune land-----	---	---	---	---	---	---
97: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
97: Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
98: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
99: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
100: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Hezel-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
100: Warden-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
101: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Quinton-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
102: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
Timmerman-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 2 1
103: Quincy-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
103: Wanser-----	Wet Alkali Meadow 6-9 Pz (R007XY603WA)	4,000	3,000	2,500	Sedge----- Basin wildrye----- Inland saltgrass----- Tufted hairgrass----- Alkali cordgrass----- Cattail----- Rush----- Reed canarygrass----- Rose----- Willow-----	26 18 18 17 5 5 5 2 2 2
104: Rinquin-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
105: Ritzcal-----	Dry Loamy 9-15 Pz (R008XY101WA)	900	750	600	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Big sagebrush----- Narrowleaf goldenweed----- Lupine----- Hood's phlox----- Arrowleaf balsamroot----- Gray rabbitbrush----- Longleaf phlox----- Woollypod milkvetch----- Hooker's balsamroot----- Buckwheat----- Fleabane-----	55 8 5 5 5 5 4 2 2 2 2 2 1 1 1
Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
106: Ritzcal-----	Dry Loamy 9-15 Pz (R008XY101WA)	900	750	600	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Big sagebrush----- Narrowleaf goldenweed----- Lupine----- Hood's phlox----- Arrowleaf balsamroot----- Gray rabbitbrush----- Longleaf phlox----- Woollypod milkvetch----- Hooker's balsamroot----- Buckwheat----- Fleabane-----	55 8 5 5 5 5 4 2 2 2 2 2 1 1 1
Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
107: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
108: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
109: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
110: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
111: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
112: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
113: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
114: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
115: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
116: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
117: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
118: Ritzville-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Nansene-----	Cool Loamy 9-15 Pz (R008XY103WA)	1,200	1,000	800	Idaho fescue-----	48
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Balsamroot-----	2
					Big sagebrush-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Phlox-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
119: Riverwash-----	---	---	---	---	---	---
120: Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
121: Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
122: Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
123: Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
123:						
Lickskillet-----	Dry Stony 9-15 Pz (R008XY201WA)	550	450	300	Bluebunch wheatgrass-----	41
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Antelope bitterbrush-----	5
					Arrowleaf balsamroot-----	5
					Bottlebrush squirreltail-----	5
					Buckwheat-----	5
					Threadleaf sedge-----	4
					Hood's phlox-----	2
					Longleaf phlox-----	2
					Lupine-----	2
					Narrowleaf goldenweed-----	2
					Fleabane-----	1
					Milkvetch-----	1
Rock outcrop-----	---	---	---	---	---	---
124:						
Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Rock outcrop-----	---	---	---	---	---	---

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
125:						
Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Rock outcrop-----	---	---	---	---	---	---
Rubble land-----	---	---	---	---	---	---
126:						
Royal-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5
127:						
Royal-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass-----	30
					Needleandthread-----	30
					Bluebunch wheatgrass-----	10
					Sandberg bluegrass-----	5
					Antelope bitterbrush-----	5
					Basin big sagebrush-----	5
					Biscuitroot-----	5
					Buckwheat-----	5
					Gray rabbitbrush-----	5
					Thickspike wheatgrass-----	5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
128: Royal-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1
129: Royal-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
130: Royal-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
131: Royal-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
132:						
Royal-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
Timmerman-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
133: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
134: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
135: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
136: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
137: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
138: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
139: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
140: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
141: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
142: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
Kennewick, gravelly substratum-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
143: Sagehill-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
143:						
Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat-----	45
					Bluebunch wheatgrass-----	25
					Needleandthread-----	10
					Indian ricegrass-----	5
					Sandberg bluegrass-----	5
					Buckwheat-----	3
					Spiny hopsage-----	3
					Big sagebrush-----	2
					Fleabane-----	1
					Milkvetch-----	1
Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
144:						
Sagemoor-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
145: Sagemoor-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
146: Sagemoor-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
147: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
148: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
149: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
150: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
151: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
152: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
153: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
154: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
155: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
156: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
157: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
158: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
159: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
160: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
161: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
162: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
163: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2
Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat-----	45
					Bluebunch wheatgrass-----	25
					Needleandthread-----	10
					Indian ricegrass-----	5
					Sandberg bluegrass-----	5
					Buckwheat-----	3
					Spiny hopsage-----	3
					Big sagebrush-----	2
					Fleabane-----	1
					Milkvetch-----	1
164: Shano-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
164: Kennewick-----	Calcareous Loam 6-9 Pz (R007XY701WA)	550	450	300	Winterfat----- Bluebunch wheatgrass----- Needleandthread----- Indian ricegrass----- Sandberg bluegrass----- Buckwheat----- Spiny hopsage----- Big sagebrush----- Fleabane----- Milkvetch-----	45 25 10 5 5 3 3 2 1 1
165: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Narrowleaf goldenweed----- Hood's phlox----- Balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Gray rabbitbrush----- Milkvetch----- Needleandthread----- Fleabane----- Lupine-----	56 8 5 5 5 5 2 2 2 2 2 2 2 1 1
166: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Narrowleaf goldenweed----- Hood's phlox----- Balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Gray rabbitbrush----- Milkvetch----- Needleandthread----- Fleabane----- Lupine-----	56 8 5 5 5 5 2 2 2 2 2 2 2 1 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
167:						
Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1
Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
168:						
Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1
Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass-----	60
					Sandberg bluegrass-----	10
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Bottlebrush squirreltail-----	3
					Fleabane-----	3
					Gray rabbitbrush-----	3
					Needleandthread-----	3
					Balsamroot-----	2
					Buckwheat-----	2
					Lupine-----	2
					Spiny hopsage-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
168: Finley-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
169: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
169: Prosser-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
Rock outcrop-----	---	---	---	---	---	---
170: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Narrowleaf goldenweed----- Hood's phlox----- Balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Gray rabbitbrush----- Milkvetch----- Needleandthread----- Fleabane----- Lupine-----	56 8 5 5 5 5 2 2 2 2 2 2 2 1 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
170: Prosser-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
Rock outcrop-----	---	---	---	---	---	---
171: Starbuck-----	Stony 6-9 Pz (R007XY202WA)	550	450	350	Bluebunch wheatgrass-----	56
					Sandberg bluegrass-----	8
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Wyoming big sagebrush-----	5
					Narrowleaf goldenweed-----	5
					Hood's phlox-----	2
					Balsamroot-----	2
					Bottlebrush squirreltail-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Needleandthread-----	2
					Fleabane-----	1
					Lupine-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
171:						
Roloff-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
Rock outcrop-----	---	---	---	---	---	---
172:						
Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
173: Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
174: Stratford-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
175: Stratford-----	Stony 9-15 Pz (R008XY202WA)	750	600	300	Bluebunch wheatgrass-----	41
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Lupine-----	5
					Threetip sagebrush-----	5
					Threadleaf sedge-----	4
					Arrowleaf balsamroot-----	3
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Milkvetch-----	2
					Wax currant-----	2
176: Stratford-----	Stony 9-15 Pz (R008XY202WA)	750	600	300	Bluebunch wheatgrass-----	41
					Sandberg bluegrass-----	10
					Cusick's bluegrass-----	5
					Thurber needlegrass-----	5
					Antelope bitterbrush-----	5
					Big sagebrush-----	5
					Buckwheat-----	5
					Lupine-----	5
					Threetip sagebrush-----	5
					Threadleaf sedge-----	4
					Arrowleaf balsamroot-----	3
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Longleaf phlox-----	2
					Milkvetch-----	2
					Wax currant-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
177: Tauncal-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
178: Tauncal-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
179: Tauncal-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
180: Tauncal-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
181: Taunton-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
182: Taunton-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
183: Timmerman-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
184: Timmerman-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
185:						
Timmerman-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
186:						
Urban land-----	---	---	---	---	---	---
Torripsamments-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
187: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
188: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
189: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
190: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
191: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass-----	55
					Cusick's bluegrass-----	10
					Sandberg bluegrass-----	5
					Thurber needlegrass-----	5
					Balsamroot-----	4
					Threetip sagebrush-----	4
					Hood's phlox-----	3
					Green rabbitbrush-----	3
					Big sagebrush-----	2
					Buckwheat-----	2
					Lupine-----	2
					Milkvetch-----	2
					Phlox-----	2
					Fleabane-----	1
192: Wacota-----	Cool Loamy 9-15 Pz (R008XY103WA)	1,200	1,000	800	Idaho fescue-----	48
					Bluebunch wheatgrass-----	20
					Cusick's bluegrass-----	5
					Sandberg bluegrass-----	5
					Threetip sagebrush-----	5
					Lupine-----	3
					Balsamroot-----	2
					Big sagebrush-----	2
					Buckwheat-----	2
					Fleabane-----	2
					Gray rabbitbrush-----	2
					Milkvetch-----	2
					Phlox-----	2
193: Wacota-----	Loamy Bottom 6-9 Pz (R007XY402WA)	2,500	2,000	1,000	Basin wildrye-----	50
					Bluebunch wheatgrass-----	30
					Sandberg bluegrass-----	5
					Basin big sagebrush-----	5
					Buckwheat-----	5
					Thurber needlegrass-----	3
					Antelope bitterbrush-----	2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
194: Wacota-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
Ritzcal-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
195: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
196: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
197: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
198: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
199: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
200: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
201: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
202: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
203: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
204: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
205: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
206: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
207: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
208: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
209: Warden-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
210: Wiehl-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread----- Bluebunch wheatgrass----- Antelope bitterbrush----- Indian ricegrass----- Thurber needlegrass----- Big sagebrush----- Thickspike wheatgrass----- Sandberg bluegrass----- Biscuitroot----- Carey's balsamroot----- Buckwheat----- Gray rabbitbrush----- Lupine----- Phlox----- Purple sage----- Spiny hopsage----- Fleabane-----	40 10 7 5 5 5 5 4 4 2 2 2 2 2 2 2 1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
211: Wiehl-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1
212: Wiehl-----	Sandy 6-9 Pz (R007XY501WA)	900	500	400	Needleandthread-----	40
					Bluebunch wheatgrass-----	10
					Antelope bitterbrush-----	7
					Indian ricegrass-----	5
					Thurber needlegrass-----	5
					Big sagebrush-----	5
					Thickspike wheatgrass-----	5
					Sandberg bluegrass-----	4
					Biscuitroot-----	4
					Carey's balsamroot-----	2
					Buckwheat-----	2
					Gray rabbitbrush-----	2
					Lupine-----	2
					Phlox-----	2
					Purple sage-----	2
					Spiny hopsage-----	2
					Fleabane-----	1

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
213: Wiehl-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
214: Wiehl-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
215: Wiehl-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
215: Schlomer-----	Loamy 6-9 Pz (R007XY102WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Thurber needlegrass----- Big sagebrush----- Bottlebrush squirreltail----- Fleabane----- Gray rabbitbrush----- Needleandthread----- Balsamroot----- Buckwheat----- Lupine----- Spiny hopsage-----	60 10 5 5 3 3 3 3 2 2 2 2
216: Willis-----	Loamy 9-15 Pz (R008XY102WA)	1,200	900	700	Bluebunch wheatgrass----- Cusick's bluegrass----- Sandberg bluegrass----- Thurber needlegrass----- Balsamroot----- Threetip sagebrush----- Hood's phlox----- Green rabbitbrush----- Big sagebrush----- Buckwheat----- Lupine----- Milkvetch----- Phlox----- Fleabane-----	55 10 5 5 4 4 3 3 2 2 2 2 2 1
217: Winchester-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5

Table 7.--Rangeland Productivity and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site	Total dry-weight production			Characteristic vegetation	Rangeland composition
		Favorable year	Normal year	Unfavorable year		
		Lb/acre	Lb/acre	Lb/acre		Pct
218: Winchester-----	Sands 6-9 Pz (R007XY502WA)	800	600	500	Indian ricegrass----- Needleandthread----- Bluebunch wheatgrass----- Sandberg bluegrass----- Antelope bitterbrush----- Basin big sagebrush----- Biscuitroot----- Buckwheat----- Gray rabbitbrush----- Thickspike wheatgrass-----	30 30 10 5 5 5 5 5 5 5
219: Xeric Torriorthents-----	Stony 6-9 Pz (R007XY202WA)	700	600	500	Bluebunch wheatgrass----- Sandberg bluegrass----- Cusick's bluegrass----- Thurber needlegrass----- Wyoming big sagebrush----- Narrowleaf goldenweed----- Hood's phlox----- Balsamroot----- Bottlebrush squirreltail----- Buckwheat----- Gray rabbitbrush----- Milkvetch----- Needleandthread----- Fleabane----- Lupine-----	56 8 5 5 5 5 2 2 2 2 2 2 2 1 1
220: Water-----	---	---	---	---	---	---
221: Dam-----	---	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height or data are not available)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1: Alderdale-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
2: Aguents-----	---	---	---	---	---
Halaquepts-----	---	---	---	---	---
3: Badland-----	---	---	---	---	---
Xeric Torriorthents----	---	---	---	---	---
4: Burbank-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
5: Burbank-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
6: Burbank-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
7: Burke-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
8: Burke-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
9: Burke-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
10: Chedehap-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
11: Chedehap-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
12: Chedehap-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
13: Cleman-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
14: Eltopia-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
15: Eltopia-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
16: Ephrata-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
17: Esquatzel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
18: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
19: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
20: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
21: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
22: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
23: Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
24: Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
25: Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
26: Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Burbank-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
26: Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
27: Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
28: Halaquepts-----	Amur honeysuckle; lilac	Siberian peashrub	Golden willow	Black willow; green ash; honeylocust	Imperial Carolina poplar
29: Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
30: Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
31: Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
32: Hezel-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Golden willow; green ash; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
33: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
34: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
35: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
36: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
37: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
38: Kahlotus-----	Amur honeysuckle; lilac; Nanking cherry; Siberian peashrub	Green ash; Rocky Mountain juniper	Austrian pine; ponderosa pine	Honeylocust; Scotch pine	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
39: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
40: Kahlotus-----	Amur honeysuckle; lilac; Nanking cherry; Siberian peashrub	Green ash; Rocky Mountain juniper	Austrian pine; ponderosa pine	Honeylocust; Scotch pine	---
Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
41: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
42: Kahlotus-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
43: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
44: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
45: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
46: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
47: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
48: Kiona-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
49: Kiona-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Rock outcrop-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
51: Koehler-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
52: Licksillet-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Bakeoven-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
53: Magallon-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
54: Magallon-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Winchester-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
54: Farrell-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
55: Malaga-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
56: Nansene-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
57: Nepel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
58: Nepel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
59: Nepel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
60: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
61: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
62: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
63: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
64: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
65: Neppel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
66: Novark-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
67: Ottmar-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
68: Ottmar-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
69: Ottmar-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
70: Ottmar-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
71: Ottmar-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
72: Ottmar-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
73: Ottmar-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
74: Ottmar-----	Peking cotoneaster	Honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
75: Ottmar-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
76: Pits-----	---	---	---	---	---
77: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
78: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
79: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
80: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
81: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
82: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
83: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Rock outcrop-----	---	---	---	---	---
84: Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Rock outcrop-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
85: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
86: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
87: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
88: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
89: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
90: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
91: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
92: Quincy-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
93: Quincy-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
94: Quincy-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
95: Quincy, cemented substratum-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
Quincy, very gravelly substratum-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
96: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Dune land-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
97: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
98: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
99: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
100: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Hezel-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
100: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
101: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Quinton-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---
102: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Timmerman-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
103: Quincy-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Wanser-----	Amur honeysuckle; lilac	Siberian peashrub	Golden willow	Black willow; green ash; honeylocust	Imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
104: Rinquin-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
105: Ritzcal-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
106: Ritzcal-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
107: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
108: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
109: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
110: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
111: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
112: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
113: Ritzville-----	Peking cotoneaster	Siberian peashrub	Blue spruce; lilac; Rocky Mountain juniper	Ponderosa pine	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
114: Ritzville-----	Peking cotoneaster	Siberian peashrub	Blue spruce; lilac; Rocky Mountain juniper	Ponderosa pine	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
115: Ritzville-----	Peking cotoneaster	Siberian peashrub	Blue spruce; lilac; Rocky Mountain juniper	Ponderosa pine	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
116: Ritzville-----	Peking cotoneaster	Siberian peashrub	Blue spruce; lilac; Rocky Mountain juniper	Ponderosa pine	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
117: Ritzville-----	Peking cotoneaster	Siberian peashrub	Blue spruce; lilac; Rocky Mountain juniper	Ponderosa pine	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
118: Ritzville-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Nansene-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
119: Riverwash-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
120: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
121: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
122: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
123: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Lickskillet-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Rock outcrop-----	---	---	---	---	---
124: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
125: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---
Rubble land-----	---	---	---	---	---
126: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
127: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
128: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
129: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
130: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
131: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
132: Royal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Timmerman-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
133: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
134: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
135: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
136: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
137: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
138: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
139: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
140: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
141: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
142: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
142: Kennewick, gravelly substratum-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
143: Sagehill-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
144: Sagemoor-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
145: Sagemoor-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
146: Sagemoor-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
147: Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
148: Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
149: Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
150: Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
151: Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
152: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
153: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
154: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
155: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
156: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
157: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
158: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
159: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
160: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
161: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
162: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
163: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
163: Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
164: Shano-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
Kennewick-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine
165: Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
166: Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
167: Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
168:					
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Finley-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
169:					
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---
170:					
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine
Prosser-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---
171:					
Starbuck-----	Peking cotoneaster; redosier dogwood	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
171: Roloff-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Rock outcrop-----	---	---	---	---	---
172: Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
173: Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
174: Stratford-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
175: Stratford-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine
176: Stratford-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
177: Tauncal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
178: Tauncal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
179: Tauncal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
180: Tauncal-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
181: Taunton-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
182: Taunton-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
183: Timmerman-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
184: Timmerman-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
185: Timmerman-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar; Scotch pine
186: Urban land-----	---	---	---	---	---
Torripsamments-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
187: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
188: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
189: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
190: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
191: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
192: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
193: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
194: Wacota-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; Scotch pine
Ritzcal-----	Peking cotoneaster	Lilac; Siberian peashrub	Eastern redcedar; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; ponderosa pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
195: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
196: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
197: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
198: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
199: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
200: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
201: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
202: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
203: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
204: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
205: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
206: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
207: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
208: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
209: Warden-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar
210: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
211: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
212: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
213: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
214: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
215: Wiehl-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
Schlomer-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; green ash; honeylocust; imperial Carolina poplar; Scotch pine
216: Willis-----	Peking cotoneaster	Amur honeysuckle; lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	Eastern arborvitae	Austrian pine; golden willow; green ash; imperial Carolina poplar
217: Winchester-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
218: Winchester-----	Peking cotoneaster	Lilac; Siberian peashrub	Blue spruce; Rocky Mountain juniper	---	Austrian pine; golden willow; honeylocust; imperial Carolina poplar; ponderosa pine; Scotch pine
219: Xeric Torriorthents-----	---	---	---	---	---

Table 8.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
220: Water-----	---	---	---	---	---
221: Dam-----	---	---	---	---	---

Table 9.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Alderdale-----	85	Very limited Large stones content Depth to hard bedrock	1.00 0.10	Very limited Depth to hard bedrock Large stones content	1.00 1.00	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 1.00 1.00
2: Aquents-----	65	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60
Halaquepts-----	30	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10
3: Badland-----	45	Not rated		Not rated		Not rated	
Xeric Torriorthents	40	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10
4: Burbank-----	80	Not limited		Not limited		Very limited Cutbanks cave	1.00
5: Burbank-----	80	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
6: Burbank-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
7: Burke-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
8: Burke-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
9: Burke-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10: Chedehap-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
11: Chedehap-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
12: Chedehap-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
13: Cleman-----	75	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Cutbanks cave	1.00
14: Eltopia-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
15: Eltopia-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
16: Ephrata-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
17: Esquatzel-----	75	Very limited Flooding	1.00	Very limited Flooding	1.00	Somewhat limited Cutbanks cave	0.10
18: Farrell-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
19: Farrell-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
20: Farrell-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84
21: Farrell-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
22: Farrell-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
23: Finley-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
24: Finley-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
25: Finley-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
26: Finley-----	35	Not limited		Not limited		Very limited Cutbanks cave	1.00
Burbank-----	25	Not limited		Not limited		Very limited Cutbanks cave	1.00
Starbuck-----	25	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10
27: Finley-----	40	Not limited		Not limited		Very limited Cutbanks cave	1.00
Neppel-----	35	Not limited		Not limited		Very limited Cutbanks cave	1.00
28: Halaquepts-----	90	Somewhat limited Depth to saturated zone	0.81	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Cutbanks cave	1.00 0.10
29: Hezel-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
30: Hezel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
31: Hezel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
32: Hezel-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
33: Kahlotus-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
34: Kahlotus-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
35: Kahlotus-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
36: Kahlotus-----	75	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
37: Kahlotus-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
38: Kahlotus-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
39: Kahlotus-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Kennewick-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
40: Kahlotus-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Kennewick-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
41: Kahlotus-----	60	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
Stratford-----	20	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
42: Kahlotus-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Stratford-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
43: Kennewick-----	95	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
44: Kennewick-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
45: Kennewick-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
46: Kennewick-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
47: Kennewick-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
48: Kiona-----	35	Very limited Slope Large stones content	1.00 0.03	Very limited Slope Large stones content	1.00 0.03	Very limited Slope Cutbanks cave Large stones content	1.00 0.10 0.03
Prosser-----	30	Very limited Slope Depth to hard bedrock	1.00 0.20	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10
Starbuck-----	20	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10
49: Kiona-----	70	Very limited Slope Large stones content	1.00 0.03	Very limited Slope Large stones content	1.00 0.03	Very limited Slope Cutbanks cave Large stones content	1.00 0.10 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
50: Koehler-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
51: Koehler-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52: Lickskillet-----	65	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.02	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.02	Very limited Depth to hard bedrock Slope Cutbanks cave Large stones content	1.00 1.00 0.10 0.02
Bakeoven-----	30	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.80	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.80	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.80
53: Magallon-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
Stratford-----	20	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
Farrell-----	15	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
54: Magallon-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Winchester-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Farrell-----	10	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
55: Malaga-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
56: Nansene-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Ritzville-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
57: Neppel-----	80	Not limited		Not limited		Very limited Cutbanks cave	1.00

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58: Neppel-----	80	Not limited		Not limited		Very limited Cutbanks cave	1.00
59: Neppel-----	80	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
60: Neppel-----	80	Not limited		Not limited		Very limited Cutbanks cave	1.00
61: Neppel-----	80	Not limited		Not limited		Very limited Cutbanks cave	1.00
62: Neppel-----	80	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
63: Neppel-----	80	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84
64: Neppel-----	80	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
65: Neppel-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Finley-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
66: Novark-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
67: Ottmar-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
68: Ottmar-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
69: Ottmar-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
70: Ottmar-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71: Ottmar-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10
72: Ottmar-----	90	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
73: Ottmar-----	90	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Cutbanks cave	0.10
74: Ottmar-----	90	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
75: Ottmar-----	40	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10
Schlomer-----	35	Somewhat limited Shrink-swell Slope	0.50 0.16	Somewhat limited Shrink-swell Slope Depth to soft bedrock	0.50 0.16 0.15	Somewhat limited Slope Depth to soft bedrock Cutbanks cave	0.16 0.15 0.10
76: Pits-----	100	Not rated		Not rated		Not rated	
77: Prosser-----	90	Somewhat limited Depth to hard bedrock	0.71	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10
78: Prosser-----	90	Somewhat limited Depth to hard bedrock	0.71	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10
79: Prosser-----	90	Somewhat limited Depth to hard bedrock Slope	0.71 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
80: Prosser-----	75	Somewhat limited Depth to hard bedrock	0.20	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81: Prosser-----	75	Somewhat limited Depth to hard bedrock	0.20	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10
82: Prosser-----	75	Somewhat limited Depth to hard bedrock Slope	0.20 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
83: Prosser-----	35	Somewhat limited Depth to hard bedrock Slope	0.20 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04
Starbuck-----	30	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04
Rock outcrop-----	15	Not rated		Not rated		Not rated	
84: Prosser-----	40	Somewhat limited Depth to hard bedrock Slope	0.71 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04
Starbuck-----	30	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04
Rock outcrop-----	15	Not rated		Not rated		Not rated	
85: Quincy-----	90	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04
86: Quincy-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
87: Quincy-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
88: Quincy-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
89: Quincy-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
90: Quincy-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
91: Quincy-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
92: Quincy-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
93: Quincy-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84
94: Quincy-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
95: Quincy, cemented substratum-----	55	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
Quincy, very gravelly substratum	40	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
96: Quincy-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
Dune land-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
97: Quincy-----	50	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97: Hezel-----	25	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
98: Quincy-----	65	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Hezel-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
99: Quincy-----	65	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Hezel-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
100: Quincy-----	45	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
Hezel-----	30	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
Warden-----	15	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
101: Quincy-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
Quinton-----	25	Very limited Slope Depth to hard bedrock	1.00 0.84	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
102: Quincy-----	60	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
Timmerman-----	35	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
103: Quincy-----	45	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Cutbanks cave Slope	1.00 0.04

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103: Wanser-----	25	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60
104: Rinquin-----	75	Not limited		Somewhat limited Depth to soft bedrock	0.79	Very limited Cutbanks cave Depth to soft bedrock Dense layer	1.00 0.79 0.50
105: Ritzcal-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Ritzville-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
106: Ritzcal-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Ritzville-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
107: Ritzville-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
108: Ritzville-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
109: Ritzville-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
110: Ritzville-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
111: Ritzville-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
112: Ritzville-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
113: Ritzville-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
114: Ritzville-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
115: Ritzville-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
116: Ritzville-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
117: Ritzville-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
118: Ritzville-----	55	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Nansene-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
119: Riverwash-----	100	Not rated		Not rated		Not rated	
120: Roloff-----	75	Somewhat limited Depth to hard bedrock Slope	0.79 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
121: Roloff-----	75	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
122: Roloff-----	90	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123: Roloff-----	40	Somewhat limited Depth to hard bedrock Slope	0.79 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
Lickskillet-----	30	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.02 0.01	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.02 0.01	Very limited Depth to hard bedrock Cutbanks cave Large stones content Slope	1.00 0.10 0.02 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
124: Roloff-----	60	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Rock outcrop-----	20	Not rated		Not rated		Not rated	
125: Roloff-----	50	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Rubble land-----	15	Not rated		Not rated		Not rated	
126: Royal-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
127: Royal-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Cutbanks cave Slope	1.00 1.00
128: Royal-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
129: Royal-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
130: Royal-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
131: Royal-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
132: Royal-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
Timmerman-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
133: Sagehill-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
134: Sagehill-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
135: Sagehill-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
136: Sagehill-----	75	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
137: Sagehill-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
138: Sagehill-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
139: Sagehill-----	75	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
140: Sagehill-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
141: Sagehill-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
142: Sagehill-----	45	Not limited		Not limited		Very limited Cutbanks cave	1.00
Kennewick, gravelly substratum-----	30	Not limited		Not limited		Very limited Cutbanks cave	1.00

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143: Sagehill-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Kennewick-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Shano-----	25	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
144: Sagemoor-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
145: Sagemoor-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
146: Sagemoor-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
147: Schlomer-----	75	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.15	Somewhat limited Depth to soft bedrock Cutbanks cave	0.15 0.10
148: Schlomer-----	75	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell Depth to soft bedrock	0.50 0.15	Somewhat limited Depth to soft bedrock Cutbanks cave	0.15 0.10
149: Schlomer-----	75	Somewhat limited Shrink-swell Slope	0.50 0.01	Somewhat limited Shrink-swell Depth to soft bedrock Slope	0.50 0.15 0.01	Somewhat limited Depth to soft bedrock Cutbanks cave Slope	0.15 0.10 0.01
150: Schlomer-----	75	Somewhat limited Slope Shrink-swell	0.84 0.50	Somewhat limited Slope Shrink-swell Depth to soft bedrock	0.84 0.50 0.15	Somewhat limited Slope Depth to soft bedrock Cutbanks cave	0.84 0.15 0.10
151: Schlomer-----	75	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 0.50 0.15	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.15 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
152: Shano-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
153: Shano-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
154: Shano-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
155: Shano-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
156: Shano-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
157: Shano-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
158: Shano-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
159: Shano-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
160: Shano-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
161: Shano-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
162: Shano-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
163: Shano-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Kennewick-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164: Shano-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
Kennewick-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
165: Starbuck-----	85	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
166: Starbuck-----	85	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
167: Starbuck-----	50	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
Prosser-----	40	Somewhat limited Depth to hard bedrock Slope	0.71 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
168: Starbuck-----	40	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
Prosser-----	25	Somewhat limited Depth to hard bedrock Slope	0.71 0.01	Very limited Depth to hard bedrock Slope	1.00 0.01	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.01
Finley-----	15	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Cutbanks cave Slope	1.00 0.84
169: Starbuck-----	40	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
169: Prosser-----	30	Very limited Slope Depth to hard bedrock	1.00 0.71	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Rock outcrop-----	15	Not rated		Not rated		Not rated	
170: Starbuck-----	40	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Prosser-----	30	Very limited Slope Depth to hard bedrock	1.00 0.71	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Rock outcrop-----	15	Not rated		Not rated		Not rated	
171: Starbuck-----	40	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Roloff-----	30	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10
Rock outcrop-----	15	Not rated		Not rated		Not rated	
172: Stratford-----	75	Not limited		Not limited		Very limited Cutbanks cave	1.00
173: Stratford-----	75	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
174: Stratford-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 1.00
175: Stratford-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
176: Stratford-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
177: Tauncal-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
178: Tauncal-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
179: Tauncal-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
180: Tauncal-----	85	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
181: Taunton-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
182: Taunton-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
183: Timmerman-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
184: Timmerman-----	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
185: Timmerman-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
186: Urban land-----	65	Not rated		Not rated		Not rated	
Torripsamments-----	25	Not limited		Not limited		Very limited Cutbanks cave	1.00
187: Wacota-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
188: Wacota-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
189: Wacota-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
190: Wacota-----	90	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
191: Wacota-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
192: Wacota-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
193: Wacota-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
194: Wacota-----	40	Very limited Flooding Slope	1.00 1.00	Very limited Flooding Slope	1.00 1.00	Very limited Slope Cutbanks cave	1.00 0.10
Ritzcal-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
195: Warden-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
196: Warden-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
197: Warden-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
198: Warden-----	90	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
199: Warden-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
200: Warden-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
201: Warden-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
202: Warden-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
203: Warden-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
204: Warden-----	90	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Cutbanks cave	0.84 0.10
205: Warden-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
206: Warden-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Cutbanks cave	1.00 0.10
207: Warden-----	90	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
208: Warden-----	85	Not limited		Not limited		Somewhat limited Cutbanks cave	0.10
209: Warden-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Somewhat limited Cutbanks cave Slope	0.10 0.01
210: Wiehl-----	85	Not limited		Somewhat limited Depth to soft bedrock	0.95	Somewhat limited Depth to soft bedrock Cutbanks cave	0.95 0.10
211: Wiehl-----	75	Somewhat limited Slope	0.01	Somewhat limited Depth to soft bedrock Slope	0.84 0.01	Somewhat limited Depth to soft bedrock Cutbanks cave Slope	0.84 0.10 0.01
212: Wiehl-----	75	Very limited Slope	1.00	Very limited Slope Depth to soft bedrock	1.00 0.84	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.84 0.10

Table 9.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
213: Wiehl-----	85	Not limited		Somewhat limited Depth to soft bedrock	0.06	Somewhat limited Cutbanks cave Depth to soft bedrock	0.10 0.06
214: Wiehl-----	85	Not limited		Somewhat limited Depth to soft bedrock	0.06	Somewhat limited Cutbanks cave Depth to soft bedrock	0.10 0.06
215: Wiehl-----	40	Very limited Slope	1.00	Very limited Slope Depth to soft bedrock	1.00 0.06	Very limited Slope Cutbanks cave Depth to soft bedrock	1.00 0.10 0.06
Schlomer-----	35	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 0.50 0.15	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.15 0.10
216: Willis-----	85	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10
217: Winchester-----	90	Not limited		Not limited		Very limited Cutbanks cave	1.00
218: Winchester-----	90	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Cutbanks cave Slope	1.00 0.01
219: Xeric Torriorthents	75	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10
220: Water-----	100	Not rated		Not rated		Not rated	
221: Dam-----	100	Not rated		Not rated		Not rated	

Table 10.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Alderdale-----	85	Very limited Depth to bedrock Filtering capacity Large stones content	1.00 1.00 1.00 1.00	Very limited Depth to bedrock Large stones Too sandy	1.00 1.00 1.00
2: Aguents-----	65	Very limited Flooding Depth to saturated zone Filtering capacity Seepage	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00
Halaquepts-----	30	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00
3: Badland-----	45	Not rated		Not rated	
Xeric Torriorthents	40	Very limited Slope Slow water movement Depth to bedrock	1.00 0.50 0.01	Very limited Slope Depth to bedrock	1.00 1.00
4: Burbank-----	80	Very limited Filtering capacity	1.00	Very limited Too sandy	1.00
5: Burbank-----	80	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
6: Burbank-----	80	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Burke-----	85	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
8: Burke-----	85	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
9: Burke-----	85	Very limited Depth to cemented pan	1.00	Not limited	
10: Chedehap-----	85	Not limited		Very limited Too sandy	1.00
11: Chedehap-----	85	Not limited		Very limited Too sandy	1.00
12: Chedehap-----	85	Somewhat limited Slope	0.01	Very limited Too sandy Slope	1.00 0.01
13: Cleman-----	75	Very limited Seepage Flooding	1.00 0.40	Very limited Seepage Flooding	1.00 0.40
14: Eltopia-----	75	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
15: Eltopia-----	75	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
16: Ephrata-----	85	Not limited		Very limited Too sandy	1.00
17: Esquatzel-----	75	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Flooding	0.40

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
18: Farrell-----	85	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage	1.00
19: Farrell-----	85	Very limited Seepage Slow water movement Slope	1.00 0.50 0.01	Very limited Seepage Slope	1.00 0.01
20: Farrell-----	85	Very limited Seepage Slope Slow water movement	1.00 0.84 0.50	Very limited Seepage Slope	1.00 0.84
21: Farrell-----	85	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
22: Farrell-----	85	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
23: Finley-----	75	Somewhat limited Slope	0.01	Very limited Too sandy Slope	1.00 0.01
24: Finley-----	75	Not limited		Very limited Too sandy	1.00
25: Finley-----	75	Not limited		Very limited Too sandy	1.00
26: Finley-----	35	Not limited		Very limited Too sandy	1.00
Burbank-----	25	Very limited Filtering capacity	1.00	Very limited Too sandy	1.00
Starbuck-----	25	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
27: Finley-----	40	Not limited		Very limited Too sandy	1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
27: Neppel-----	35	Somewhat limited Slow water movement	0.50	Very limited Too sandy	1.00
28: Halaquepts-----	90	Very limited Depth to saturated zone Slow water movement	1.00 0.50	Very limited Depth to saturated zone Excess sodium Excess salt	1.00 1.00
29: Hezel-----	85	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01
30: Hezel-----	80	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
31: Hezel-----	80	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
32: Hezel-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Too sandy	0.50
33: Kahlotus-----	75	Somewhat limited Slow water movement	0.50	Not limited	
34: Kahlotus-----	75	Somewhat limited Slow water movement	0.50	Not limited	
35: Kahlotus-----	75	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
36: Kahlotus-----	75	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
37: Kahlotus-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
38: Kahlotus-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
39: Kahlotus-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Kennewick-----	45	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
40: Kahlotus-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Kennewick-----	45	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
41: Kahlotus-----	60	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
Stratford-----	20	Very limited Seepage Slow water movement Slope	1.00 0.50 0.01	Very limited Seepage Too sandy Slope	1.00 1.00 0.01
42: Kahlotus-----	60	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Stratford-----	20	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage Too sandy	1.00 1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
43: Kennewick-----	95	Very limited Slow water movement	1.00	Not limited	
44: Kennewick-----	85	Very limited Slow water movement	1.00	Not limited	
45: Kennewick-----	85	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01
46: Kennewick-----	85	Very limited Slow water movement Slope	1.00 0.84	Somewhat limited Slope	0.84
47: Kennewick-----	85	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
48: Kiona-----	35	Very limited Slope Slow water movement Large stones content	1.00 0.50 0.03	Very limited Slope Large stones content	1.00 0.16
Prosser-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
Starbuck-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
49: Kiona-----	70	Very limited Slope Slow water movement Large stones content	1.00 0.50 0.03	Very limited Slope Large stones content	1.00 0.16
Rock outcrop-----	15	Not rated		Not rated	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
50: Koehler-----	75	Very limited Depth to cemented pan Filtering capacity Slope	1.00 1.00 0.01	Very limited Too sandy Slope	1.00 0.01
51: Koehler-----	75	Very limited Depth to cemented pan Filtering capacity	1.00 1.00	Very limited Too sandy	1.00
52: Lickskillet-----	65	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.02	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.02
Bakeoven-----	30	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.80	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.80
53: Magallon-----	45	Very limited Filtering capacity Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00
Stratford-----	20	Very limited Seepage Slope Slow water movement	1.00 1.00 0.50	Very limited Seepage Too sandy Slope	1.00 1.00 1.00
Farrell-----	15	Very limited Seepage Slope Slow water movement	1.00 1.00 0.50	Very limited Seepage Slope	1.00 1.00
54: Magallon-----	45	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
Winchester-----	35	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
54: Farrell-----	10	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage	1.00 1.00
55: Malaga-----	90	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
56: Nansene-----	55	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Ritzville-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
57: Neppel-----	80	Somewhat limited Slow water movement	0.50	Very limited Too sandy	1.00
58: Neppel-----	80	Somewhat limited Slow water movement	0.50	Very limited Too sandy	1.00
59: Neppel-----	80	Somewhat limited Slow water movement Slope	0.50 0.01	Very limited Too sandy Slope	1.00 0.01
60: Neppel-----	80	Somewhat limited Slow water movement	0.50	Very limited Too sandy	1.00
61: Neppel-----	80	Somewhat limited Slow water movement	0.50	Very limited Too sandy	1.00
62: Neppel-----	80	Somewhat limited Slow water movement Slope	0.50 0.01	Very limited Too sandy Slope	1.00 0.01
63: Neppel-----	80	Somewhat limited Slope Slow water movement	0.84 0.50	Very limited Too sandy Slope	1.00 0.84

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
64: Neppel-----	80	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Too sandy	1.00 1.00
65: Neppel-----	40	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Too sandy	1.00 1.00
Finley-----	35	Very limited Slope	1.00	Very limited Slope Too sandy	1.00 1.00
66: Novark-----	75	Very limited Filtering capacity	1.00	Very limited Too sandy	1.00
67: Ottmar-----	75	Very limited Slow water movement Depth to bedrock	1.00 0.86	Very limited Depth to bedrock	1.00
68: Ottmar-----	75	Very limited Slow water movement Depth to bedrock	1.00 0.86	Very limited Depth to bedrock	1.00
69: Ottmar-----	75	Very limited Slow water movement Depth to bedrock Slope	1.00 0.86 0.01	Very limited Depth to bedrock Slope	1.00 0.01
70: Ottmar-----	85	Very limited Slow water movement	1.00	Not limited	
71: Ottmar-----	85	Very limited Slow water movement	1.00	Not limited	
72: Ottmar-----	90	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01
73: Ottmar-----	90	Very limited Slow water movement	1.00	Not limited	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
74: Ottmar-----	90	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01
75: Ottmar-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 0.86 0.16	Very limited Depth to bedrock Slope	1.00 0.16
Schlomer-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.16	Very limited Depth to bedrock Slope	1.00 0.16
76: Pits-----	100	Not rated		Not rated	
77: Prosser-----	90	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
78: Prosser-----	90	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
79: Prosser-----	90	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
80: Prosser-----	75	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
81: Prosser-----	75	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
82: Prosser-----	75	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
83: Prosser-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Starbuck-----	30	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Rock outcrop-----	15	Not rated		Not rated	
84: Prosser-----	40	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Starbuck-----	30	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04
Rock outcrop-----	15	Not rated		Not rated	
85: Quincy-----	90	Very limited Filtering capacity Slope	1.00 0.04	Very limited Too sandy Slope	1.00 0.04
86: Quincy-----	90	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
87: Quincy-----	90	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
88: Quincy-----	85	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
89: Quincy-----	85	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
90: Quincy-----	85	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
91: Quincy-----	85	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
92: Quincy-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Too sandy	0.50
93: Quincy-----	85	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope Too sandy	0.84 0.50
94: Quincy-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Too sandy	1.00 0.50
95: Quincy, cemented substratum-----	55	Very limited Filtering capacity Depth to cemented pan Slope	1.00 0.94 0.01	Very limited Too sandy Slope	1.00 0.01
Quincy, very gravelly substratum	40	Very limited Filtering capacity Slope	1.00 0.01	Somewhat limited Too sandy Slope	0.50 0.01
96: Quincy-----	55	Very limited Filtering capacity Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00
Dune land-----	35	Very limited Seepage Filtering capacity Slope	1.00 1.00 1.00	Not rated	
97: Quincy-----	50	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
Hezel-----	25	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
98:					
Quincy-----	65	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
Hezel-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
99:					
Quincy-----	65	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 1.00
Hezel-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
100:					
Quincy-----	45	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
Hezel-----	30	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01
Warden-----	15	Somewhat limited Slow water movement	0.50	Not limited	
101:					
Quincy-----	40	Very limited Filtering capacity Slope	1.00 1.00	Very limited Too sandy Slope	1.00 1.00
Quinton-----	25	Very limited Depth to bedrock Filtering capacity Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope Too sandy	1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated	
102:					
Quincy-----	60	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
Timmerman-----	35	Very limited Filtering capacity Slope	1.00 0.01	Somewhat limited Too sandy Slope	0.50 0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
103: Quincy-----	45	Very limited Filtering capacity Slope	1.00 0.04	Very limited Too sandy Slope	1.00 0.04
Wanser-----	25	Very limited Flooding Depth to saturated zone Filtering capacity Seepage	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage Too sandy	1.00 1.00 1.00 1.00
104: Rinquin-----	75	Very limited Depth to bedrock Filtering capacity	1.00 1.00	Very limited Depth to bedrock Too sandy	1.00 0.50
105: Ritzcal-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Ritzville-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
106: Ritzcal-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Ritzville-----	45	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
107: Ritzville-----	85	Somewhat limited Slow water movement	0.50	Not limited	
108: Ritzville-----	85	Somewhat limited Slow water movement	0.50	Not limited	
109: Ritzville-----	85	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
110: Ritzville-----	85	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
111: Ritzville-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
112: Ritzville-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
113: Ritzville-----	85	Somewhat limited Slow water movement	0.50	Not limited	
114: Ritzville-----	85	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
115: Ritzville-----	85	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
116: Ritzville-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
117: Ritzville-----	85	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
118: Ritzville-----	55	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Nansene-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
119: Riverwash-----	100	Not rated		Not rated	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
120: Roloff-----	75	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
121: Roloff-----	75	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
122: Roloff-----	90	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
123: Roloff-----	40	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Lickskillet-----	30	Very limited Depth to bedrock Large stones content Slope	1.00 0.02 0.01	Very limited Depth to bedrock Large stones content Slope	1.00 0.02 0.01
Rock outcrop-----	15	Not rated		Not rated	
124: Roloff-----	60	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
125: Roloff-----	50	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Rubble land-----	15	Not rated		Not rated	
126: Royal-----	85	Not limited		Not limited	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
127: Royal-----	85	Very limited Slope	1.00	Very limited Slope	1.00
128: Royal-----	85	Not limited		Not limited	
129: Royal-----	85	Not limited		Not limited	
130: Royal-----	85	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01
131: Royal-----	75	Not limited		Not limited	
132: Royal-----	50	Very limited Slope	1.00	Very limited Slope	1.00
Timmerman-----	35	Very limited Filtering capacity Slope	1.00 1.00	Very limited Slope Too sandy	1.00 0.50
133: Sagehill-----	75	Somewhat limited Slow water movement	0.50	Not limited	
134: Sagehill-----	75	Somewhat limited Slow water movement	0.50	Not limited	
135: Sagehill-----	75	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
136: Sagehill-----	75	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
137: Sagehill-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
138: Sagehill-----	75	Somewhat limited Depth to cemented pan Slow water movement	0.94 0.50	Not limited	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
139: Sagehill-----	75	Somewhat limited Depth to cemented pan Slow water movement	0.94 0.50	Not limited	
140: Sagehill-----	85	Somewhat limited Slow water movement	0.50	Not limited	
141: Sagehill-----	85	Somewhat limited Slow water movement	0.50	Not limited	
142: Sagehill-----	45	Somewhat limited Slow water movement	0.50	Not limited	
Kennewick, gravelly substratum-----	30	Somewhat limited Slow water movement	0.50	Not limited	
143: Sagehill-----	35	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Kennewick-----	30	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
Shano-----	25	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
144: Sagemoor-----	90	Very limited Slow water movement	1.00	Not limited	
145: Sagemoor-----	90	Very limited Slow water movement	1.00	Not limited	
146: Sagemoor-----	90	Very limited Slow water movement Slope	1.00 0.01	Somewhat limited Slope	0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
147: Schlomer-----	75	Very limited Depth to bedrock Slow water movement	1.00 1.00	Very limited Depth to bedrock	1.00
148: Schlomer-----	75	Very limited Depth to bedrock Slow water movement	1.00 1.00	Very limited Depth to bedrock	1.00
149: Schlomer-----	75	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
150: Schlomer-----	75	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 0.84	Very limited Depth to bedrock Slope	1.00 0.84
151: Schlomer-----	75	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
152: Shano-----	85	Somewhat limited Slow water movement	0.50	Not limited	
153: Shano-----	85	Somewhat limited Slow water movement	0.50	Not limited	
154: Shano-----	85	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
155: Shano-----	85	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
156: Shano-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
157: Shano-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
158: Shano-----	85	Somewhat limited Slow water movement	0.50	Not limited	
159: Shano-----	85	Somewhat limited Slow water movement	0.50	Not limited	
160: Shano-----	85	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
161: Shano-----	85	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
162: Shano-----	75	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
163: Shano-----	40	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Kennewick-----	35	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
164: Shano-----	40	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
Kennewick-----	40	Very limited Slope Slow water movement	1.00 1.00	Very limited Slope	1.00
165: Starbuck-----	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
166: Starbuck-----	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
167: Starbuck-----	50	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Prosser-----	40	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
168: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Prosser-----	25	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
Finley-----	15	Somewhat limited Slope	0.84	Very limited Too sandy Slope	1.00 0.84
169: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Prosser-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
170: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Prosser-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
171: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
171: Roloff-----	30	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
172: Stratford-----	75	Very limited Seepage Slow water movement	1.00 0.50	Very limited Seepage Too sandy	1.00 1.00
173: Stratford-----	75	Very limited Seepage Slow water movement Slope	1.00 0.50 0.01	Very limited Seepage Too sandy Slope	1.00 1.00 0.01
174: Stratford-----	75	Very limited Slope Seepage Slow water movement	1.00 1.00 0.50	Very limited Slope Seepage Too sandy	1.00 1.00 1.00
175: Stratford-----	85	Very limited Seepage Slow water movement Slope	1.00 0.50 0.01	Very limited Seepage Too sandy Slope	1.00 1.00 0.01
176: Stratford-----	85	Very limited Filtering capacity Seepage Slope	1.00 1.00 0.01	Very limited Seepage Too sandy Slope	1.00 1.00 0.01
177: Tauncal-----	85	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
178: Tauncal-----	85	Very limited Depth to cemented pan Slow water movement Slope	1.00 0.50 0.01	Somewhat limited Slope	0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
179: Tauncal-----	85	Very limited Depth to cemented pan Slope Slow water movement	1.00 0.84 0.50	Somewhat limited Slope	0.84
180: Tauncal-----	85	Very limited Depth to cemented pan Slope Slow water movement	1.00 1.00 0.50	Very limited Slope	1.00
181: Taunton-----	85	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
182: Taunton-----	85	Very limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
183: Timmerman-----	85	Very limited Filtering capacity	1.00	Somewhat limited Too sandy	0.50
184: Timmerman-----	85	Very limited Filtering capacity	1.00	Somewhat limited Too sandy	0.50
185: Timmerman-----	85	Very limited Filtering capacity Slope	1.00 0.01	Somewhat limited Too sandy Slope	0.50 0.01
186: Urban land-----	65	Not rated		Not rated	
Torripsamments-----	25	Very limited Filtering capacity	1.00	Very limited Too sandy	1.00
187: Wacota-----	90	Somewhat limited Slow water movement	0.50	Not limited	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
188: Wacota-----	90	Somewhat limited Slow water movement	0.50	Not limited	
189: Wacota-----	90	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
190: Wacota-----	90	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
191: Wacota-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
192: Wacota-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
193: Wacota-----	90	Somewhat limited Slow water movement	0.50	Not limited	
194: Wacota-----	40	Very limited Slope Slow water movement Flooding	1.00 0.50 0.40	Very limited Slope Flooding	1.00 0.40
Ritzcal-----	35	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
195: Warden-----	90	Somewhat limited Slow water movement	0.50	Not limited	
196: Warden-----	90	Somewhat limited Slow water movement	0.50	Not limited	
197: Warden-----	90	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
198: Warden-----	90	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
199: Warden-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
200: Warden-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
201: Warden-----	90	Somewhat limited Slow water movement	0.50	Not limited	
202: Warden-----	90	Somewhat limited Slow water movement	0.50	Not limited	
203: Warden-----	90	Somewhat limited Slow water movement Slope	0.50 0.01	Somewhat limited Slope	0.01
204: Warden-----	90	Somewhat limited Slope Slow water movement	0.84 0.50	Somewhat limited Slope	0.84
205: Warden-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
206: Warden-----	90	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope	1.00
207: Warden-----	90	Somewhat limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
208: Warden-----	85	Somewhat limited Depth to cemented pan Slow water movement	1.00 0.50	Not limited	
209: Warden-----	85	Somewhat limited Depth to cemented pan Slow water movement Slope	1.00 0.50 0.01	Somewhat limited Slope	0.01
210: Wiehl-----	85	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
211: Wiehl-----	75	Very limited Depth to bedrock Slow water movement Slope	1.00 0.50 0.01	Very limited Depth to bedrock Slope	1.00 0.01
212: Wiehl-----	75	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00
213: Wiehl-----	85	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
214: Wiehl-----	85	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to bedrock	1.00
215: Wiehl-----	40	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.50	Very limited Depth to bedrock Slope	1.00 1.00
Schlomer-----	35	Very limited Depth to bedrock Slow water movement Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00

Table 10.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
216: Willis-----	85	Very limited Depth to cemented pan Slope	1.00 0.16	Somewhat limited Slope	0.16
217: Winchester-----	90	Very limited Filtering capacity	1.00	Very limited Too sandy	1.00
218: Winchester-----	90	Very limited Filtering capacity Slope	1.00 0.01	Very limited Too sandy Slope	1.00 0.01
219: Xeric Torriorthents	75	Very limited Slope Slow water movement Depth to bedrock	1.00 0.50 0.01	Very limited Slope Depth to bedrock	1.00 1.00
220: Water-----	100	Not rated		Not rated	
221: Dam-----	100	Not rated		Not rated	

Table 11a.--Construction Materials (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0, the greater the potential limitation. Values of 0 are absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.0 have less of a limitation. Limiting features with values of 1.00 have absolutely no limitation. Fine-earth fraction and fragment content are reported on a weight basis. A brief summary of the rating criteria and a definition of some of the abbreviations used in the ratings are given at the end of the table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Alderdale-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Sand fraction >85 percent Rock fragment content Depth to bedrock 20 to 40 inches	0.00 0.00 0.78
2: Aguents-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.09	Poor Sand fraction >85 percent Wetness at <1 foot	0.00 0.00
Halaquepts-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Wetness at 1 to 2.8 feet	0.00
3: Badland-----	45	Not rated		Not rated		Not rated	
Xeric Torriorthents	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
4: Burbank-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Fair Thickest layer possible source Bottom layer possible source	0.03 0.49	Poor Hard to reclaim Sand fraction 75 to 85 percent Rock fragment content	0.00 0.16 0.50

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5: Burbank-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Fair Thickest layer possible source Bottom layer possible source	0.03 0.49	Poor Hard to reclaim Sand fraction 75 to 85 percent Rock fragment content	0.00 0.16 0.50
6: Burbank-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Fair Thickest layer possible source Bottom layer possible source	0.09 0.49	Poor Slope >15 percent Hard to reclaim Rock fragment content Sand fraction 75 to 85 percent	0.00 0.00 0.00 0.10
7: Burke-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.21
8: Burke-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.21
9: Burke-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.03
10: Chedehap-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.01 0.54	Fair Hard to reclaim	0.95
11: Chedehap-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.01 0.54	Fair Hard to reclaim	0.95

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12: Chedehap-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.01 0.54	Fair Hard to reclaim	0.95
13: Cleman-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.03	Good	
14: Eltopia-----	75	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.44	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.16
15: Eltopia-----	75	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.44	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.16
16: Ephrata-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.03
17: Esquatzel-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
18: Farrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
19: Farrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Good	
20: Farrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Fair Slope 12 to 15 percent	0.16
21: Farrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Poor Slope >15 percent	0.00
22: Farrell-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Poor Slope >15 percent	0.00
23: Finley-----	75	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer possible source Bottom layer possible source	0.03 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.00
24: Finley-----	75	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.00
25: Finley-----	75	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.00
26: Finley-----	35	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
26: Burbank-----	25	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.12	Fair Thickest layer possible source Bottom layer possible source	0.03 0.49	Poor Hard to reclaim Sand fraction 75 to 85 percent Rock fragment content	0.00 0.16 0.50
Starbuck-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches	0.00
27: Finley-----	40	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Hard to reclaim Rock fragment content	0.00 0.00
Neppel-----	35	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
28: Halaquepts-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Wetness at 1 to 2.8 feet EC 4 to 8 mmhos/cm SAR 4 to 13	0.29 0.50 0.60
29: Hezel-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Good	
30: Hezel-----	80	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Poor Slope >15 percent	0.00
31: Hezel-----	80	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32: Hezel-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Poor Hard to reclaim Sand fraction 75 to 85 percent	0.00 0.16
33: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
34: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
35: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
36: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
37: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
38: Kahlotus-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
39:							
Kahlotus-----	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Kennewick-----	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
40:							
Kahlotus-----	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Kennewick-----	45	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
41:							
Kahlotus-----	60	Poor		Poor		Good	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Stratford-----	20	Fair		Fair		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
		Bottom layer possible source	0.20	Bottom layer possible source	0.20		
42:							
Kahlotus-----	60	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Stratford-----	20	Fair		Fair		Poor	
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer possible source	0.20	Bottom layer possible source	0.20	Hard to reclaim	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43: Kennewick-----	95	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
44: Kennewick-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
45: Kennewick-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
46: Kennewick-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
47: Kennewick-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
48: Kiona-----	35	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Hard to reclaim Rock fragment content	0.00 0.00 0.00
Prosser-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches	0.00 0.68
Starbuck-----	20	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock <20 inches	0.00 0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49: Kiona-----	70	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Hard to reclaim Rock fragment content	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
50: Koehler-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.10	Fair Sand fraction 75 to 85 percent Rock fragment content Depth to pan 20 to 40 inches	0.16 0.50 0.90
51: Koehler-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer possible source	0.00 0.03	Fair Sand fraction 75 to 85 percent Rock fragment content Depth to pan 20 to 40 inches	0.16 0.50 0.80
52: Licksillet-----	65	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragment content Depth to bedrock <20 inches Slope >15 percent	0.00 0.00 0.00
Bakeoven-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragment content Depth to bedrock <20 inches Slope >15 percent	0.00 0.00 0.00
53: Magallon-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.54	Poor Sand fraction >85 percent Slope >15 percent Rock fragment content	0.00 0.00 0.88
Stratford-----	20	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.20	Fair Thickest layer not a source Bottom layer possible source	0.00 0.20	Poor Hard to reclaim Slope >15 percent	0.00 0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53: Farrell-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Poor Slope >15 percent	0.00
54: Magallon-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.54	Poor Slope >15 percent Sand fraction >85 percent Rock fragment content	0.00 0.00 0.88
Winchester-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.10 0.54	Poor Slope >15 percent Sand fraction >85 percent	0.00 0.00
Farrell-----	10	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Good Thickest layer not a source Bottom layer possible source	0.00 0.91	Poor Slope >15 percent	0.00
55: Malaga-----	90	Fair Bottom layer possible source Thickest layer possible source	0.12 0.12	Fair Thickest layer possible source Bottom layer possible source	0.03 0.49	Poor Sand fraction >85 percent Rock fragment content Hard to reclaim	0.00 0.00 0.00
56: Nansene-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Ritzville-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
57: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
59: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
60: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
61: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
62: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim	0.00
63: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Hard to reclaim Slope 12 to 15 percent	0.00 0.16
64: Neppel-----	80	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Slope >15 percent Hard to reclaim	0.00 0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
65: Neppel-----	40	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.63	Fair Thickest layer not a source Bottom layer possible source	0.00 0.63	Poor Slope >15 percent Hard to reclaim	0.00 0.00
Finley-----	35	Fair Thickest layer possible source Bottom layer possible source	0.06 0.14	Fair Thickest layer not a source Bottom layer possible source	0.00 0.14	Poor Slope >15 percent Hard to reclaim Rock fragment content	0.00 0.00 0.00
66: Novark-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer not a source Bottom layer possible source	0.00 0.34	Poor Sand fraction >85 percent	0.00
67: Ottmar-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Bulk density >1.8 in upper 20 inches	0.00
68: Ottmar-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
69: Ottmar-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
70: Ottmar-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71: Ottmar-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
72: Ottmar-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
73: Ottmar-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
74: Ottmar-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
75: Ottmar-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 8 to 12 percent	0.84
Schlomer-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Slope 8 to 12 percent	0.72 0.84
76: Pits-----	100	Not rated		Not rated		Not rated	
77: Prosser-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.38 0.97

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78: Prosser-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.38 0.97
79: Prosser-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.38 0.97
80: Prosser-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.68
81: Prosser-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.68
82: Prosser-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.68
83: Prosser-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Slope 8 to 12 percent	0.68 0.96
Starbuck-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches Slope 8 to 12 percent	0.00 0.96
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84: Prosser-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Slope 8 to 12 percent Rock fragment content	0.38 0.96 0.97
Starbuck-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches Rock fragment content Slope 8 to 12 percent	0.00 0.95 0.96
Rock outcrop-----	15	Not rated		Not rated		Not rated	
85: Quincy-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Fair Sand fraction 75 to 85 percent Slope 8 to 12 percent	0.28 0.96
86: Quincy-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
87: Quincy-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
88: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Fair Sand fraction 75 to 85 percent	0.28
89: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Fair Sand fraction 75 to 85 percent	0.28

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
90: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
91: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
92: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer possible source	0.00 0.02	Fair Sand fraction 75 to 85 percent	0.28
93: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer possible source	0.00 0.02	Fair Slope 12 to 15 percent Sand fraction 75 to 85 percent	0.16 0.28
94: Quincy-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer possible source	0.00 0.02	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
95: Quincy, cemented substratum-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.28	Poor Sand fraction >85 percent	0.00
Quincy, very gravelly substratum-----	40	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.19	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Poor Hard to reclaim Sand fraction 75 to 85 percent Rock fragment content	0.00 0.16 0.88

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
96: Quincy-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
Dune land-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.40 0.40	Poor Sand fraction >85 percent Slope >15 percent	0.00 0.00
97: Quincy-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Fair Sand fraction 75 to 85 percent	0.28
Hezel-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Good	
98: Quincy-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
Hezel-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Poor Slope >15 percent	0.00
99: Quincy-----	65	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
Hezel-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.10	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.16

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
100: Quincy-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Fair Sand fraction 75 to 85 percent	0.28
Hezel-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer not a source Thickest layer possible source	0.00 0.08	Good	
Warden-----	15	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
101: Quincy-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Poor Slope >15 percent Sand fraction 75 to 85 percent	0.00 0.28
Quinton-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.03 0.03	Poor Slope >15 percent Sand fraction 75 to 85 percent Depth to bedrock 20 to 40 inches	0.00 0.16 0.28
Rock outcrop-----	15	Not rated		Not rated		Not rated	
102: Quincy-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.09	Fair Sand fraction 75 to 85 percent	0.28
Timmerman-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.02 0.10	Fair Sand fraction 75 to 85 percent Rock fragment content Hard to reclaim	0.20 0.28 0.95

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
103: Quincy-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.09 0.30	Fair Sand fraction 75 to 85 percent Slope 8 to 12 percent	0.28 0.96
Wanser-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Bottom layer possible source Thickest layer possible source	0.35 0.40	Poor Sand fraction >85 percent Wetness at <1 foot EC 4 to 8 mmhos/cm	0.00 0.00 0.88
104: Rinquin-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer possible source Thickest layer possible source	0.03 0.03	Fair Bulk density >1.8 at 20 to 30 inches Sand fraction 75 to 85 percent Depth to bedrock 20 to 40 inches	0.01 0.14 0.32
105: Ritzcal-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Ritzville-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
106: Ritzcal-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Ritzville-----	45	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
107: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
108: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
109: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
110: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
111: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
112: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
113: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
114: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
115: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
116: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
117: Ritzville-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
118: Ritzville-----	55	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Nansene-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
119: Riverwash-----	100	Not rated		Not rated		Not rated	
120: Roloff-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.32 0.50

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
121: Rolloff-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches Rock fragment content	0.00 0.32 0.50
122: Rolloff-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches Rock fragment content	0.00 0.32 0.50
123: Rolloff-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.32 0.50
Lickskillet-----	30	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Rock fragment content Depth to bedrock <20 inches	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
124: Rolloff-----	60	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches Rock fragment content	0.00 0.32 0.50
Rock outcrop-----	20	Not rated		Not rated		Not rated	
125: Rolloff-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches Rock fragment content	0.00 0.32 0.50

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
125: Rock outcrop-----	25	Not rated		Not rated		Not rated	
Rubble land-----	15	Not rated		Not rated		Not rated	
126: Royal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Good	
127: Royal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Poor Slope >15 percent	0.00
128: Royal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Good	
129: Royal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Good	
130: Royal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Good	
131: Royal-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132: Royal-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Thickest layer not a source Bottom layer possible source	0.00 0.06	Poor Slope >15 percent	0.00
Timmerman-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.02 0.10	Poor Slope >15 percent Sand fraction 75 to 85 inches Rock fragment content Hard to reclaim	0.00 0.20 0.28 0.95
133: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
134: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
135: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
136: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
137: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
138: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
139: Sagehill-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
140: Sagehill-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Fair Thickest layer not a source Bottom layer possible source	0.00 0.54	Poor Hard to reclaim	0.00
141: Sagehill-----	85	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Fair Thickest layer not a source Bottom layer possible source	0.00 0.54	Poor Hard to reclaim	0.00
142: Sagehill-----	45	Poor Thickest layer not a source due to fines or thin layer Bottom layer not a source	0.00 0.00	Fair Thickest layer not a source Bottom layer possible source	0.00 0.54	Poor Hard to reclaim	0.00
Kennewick, gravelly substratum-----	30	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.25	Fair Thickest layer not a source Bottom layer possible source	0.00 0.43	Good	
143: Sagehill-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143: Kennewick-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Shano-----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
144: Sagemoor-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
145: Sagemoor-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
146: Sagemoor-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
147: Schlomer-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.72
148: Schlomer-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Bulk density >1.8 in upper 20 inches Depth to bedrock 20 to 40 inches	0.00 0.72

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
149: Schlomer-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.72
150: Schlomer-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent Depth to bedrock 20 to 40 inches	0.16 0.72
151: Schlomer-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches	0.00 0.72
152: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
153: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
154: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
155: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156: Shano-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
157: Shano-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
158: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
159: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
160: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
161: Shano-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
162: Shano-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163: Shano-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Kennewick-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
164: Shano-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Kennewick-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
165: Starbuck-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches Rock fragment content	0.00 0.95
166: Starbuck-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches	0.00
167: Starbuck-----	50	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Depth to bedrock <20 inches Rock fragment content	0.00 0.95
Prosser-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches Rock fragment content	0.38 0.97

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
168:							
Starbuck-----	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
Prosser-----	25	Poor		Poor		Fair	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.38
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00		
Finley-----	15	Fair		Fair		Poor	
		Thickest layer possible source	0.06	Thickest layer not a source	0.00	Hard to reclaim	0.00
		Bottom layer possible source	0.14	Bottom layer possible source	0.14	Rock fragment content	0.00
						Slope 12 to 15 percent	0.16
169:							
Starbuck-----	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
Prosser-----	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.38
Rock outcrop-----	15	Not rated		Not rated		Not rated	
170:							
Starbuck-----	40	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.95
Prosser-----	30	Poor		Poor		Poor	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source due to fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.38
						Rock fragment content	0.97
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Starbuck-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock <20 inches	0.00 0.00
Roloff-----	30	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches Rock fragment content	0.00 0.32 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
172: Stratford-----	75	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.20	Fair Thickest layer not a source Bottom layer possible source	0.00 0.20	Poor Hard to reclaim	0.00
173: Stratford-----	75	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.20	Fair Thickest layer not a source Bottom layer possible source	0.00 0.20	Poor Hard to reclaim	0.00
174: Stratford-----	75	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.20	Fair Thickest layer not a source Bottom layer possible source	0.00 0.20	Poor Slope >15 percent Hard to reclaim	0.00 0.00
175: Stratford-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.38	Fair Thickest layer not a source Bottom layer possible source	0.00 0.54	Poor Hard to reclaim Rock fragment content	0.00 0.12
176: Stratford-----	85	Fair Thickest layer not a source due to fines or thin layer Bottom layer possible source	0.00 0.38	Fair Thickest layer not a source Bottom layer possible source	0.00 0.54	Poor Sand fraction >85 percent Hard to reclaim Rock fragment content	0.00 0.00 0.00

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
177: Tauncal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.94
178: Tauncal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches	0.94
179: Tauncal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent Depth to pan 20 to 40 inches	0.16 0.94
180: Tauncal-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to pan 20 to 40 inches	0.00 0.94
181: Taunton-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan >40 inches	0.99
182: Taunton-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan >40 inches	0.99
183: Timmerman-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.02 0.10	Fair Sand fraction 75 to 85 percent Rock fragment content Hard to reclaim	0.20 0.28 0.95

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184: Timmerman-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.02 0.10	Fair Sand fraction 75 to 85 percent Rock fragment content Hard to reclaim	0.20 0.28 0.95
185: Timmerman-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.02 0.10	Fair Sand fraction 75 to 85 percent Rock fragment content Hard to reclaim	0.20 0.28 0.95
186: Urban land-----	65	Not rated		Not rated		Not rated	
Torripsamments----	25	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.03 0.34	Fair Sand fraction 75 to 85 percent	0.23
187: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
188: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
189: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
190: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
191: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
192: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
193: Wacota-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
194: Wacota-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
Ritzcal-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
195: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
196: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
197: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
198: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
199: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
200: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
201: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
202: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
203: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
204: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Slope 12 to 15 percent	0.16
205: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
206: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
207: Warden-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
208: Warden-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
209: Warden-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Good	
210: Wiehl-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.16

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
211: Wiehl-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.28
212: Wiehl-----	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches	0.00 0.28
213: Wiehl-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.82
214: Wiehl-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to bedrock 20 to 40 inches	0.82
215: Wiehl-----	40	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches	0.00 0.82
Schlomer-----	35	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent Depth to bedrock 20 to 40 inches	0.00 0.72
216: Willis-----	85	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Fair Depth to pan 20 to 40 inches Slope 8 to 12 percent	0.03 0.84

Table 11a.--Construction Materials (Part 1)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
217: Winchester-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.10 0.54	Poor Sand fraction >85 percent	0.00
218: Winchester-----	90	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Fair Thickest layer possible source Bottom layer possible source	0.10 0.54	Poor Sand fraction >85 percent	0.00
219: Xeric Torriorthents	75	Poor Bottom layer not a source Thickest layer not a source due to fines or thin layer	0.00 0.00	Poor Bottom layer not a source Thickest layer not a source	0.00 0.00	Poor Slope >15 percent	0.00
220: Water-----	100	Not rated		Not rated		Not rated	
221: Dam-----	100	Not rated		Not rated		Not rated	

The potential as a source of gravel evaluates the content of coarse fragments more than 0.2 inch in diameter in the bottom layer or in the thickest layer of the soil.

The potential as a source of sand evaluates the amount of sand and fine gravel in the thickest layer or in the bottom layer of the soil. The organic soil layers that have a Unified engineering class for peat (PT) are also evaluated.

The potential as a source of topsoil evaluates certain soil properties at various depths, including calcium carbonates, percent clay, soil bulk density, percent sand, soil wetness, content of coarse fragments 0.2 to 3 inches in diameter, content of fragments more than 3 inches in diameter, organic matter content (OM), sodium content expressed as the sodium adsorption ratio (SAR), salinity expressed as millimhos per centimeter (mmhos/cm) of electrical conductivity (EC), depth to bedrock, slope, and soil pH.

Table 11b.--Construction Materials (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1: Alderdale-----	85	Poor Too sandy Cobble content Droughty Low organic matter content Depth to bedrock	 0.00 0.00 0.00 0.12 0.90	Poor Depth to bedrock Cobble content	 0.00 0.00
2: Aguents-----	65	Poor Too sandy Low organic matter content Water erosion	 0.00 0.12 0.90	Poor Depth to wetness	 0.00
Halaguepts-----	30	Poor Sodium content Water erosion Low organic matter content	 0.00 0.37 0.50	Poor Depth to wetness	 0.00
3: Badland-----	45	Not rated		Not rated	
Xeric Torriorthents	40	Fair Low organic matter content Water erosion	 0.12 0.37	Poor Slope Shrink-swell	 0.00 0.87
4: Burbank-----	80	Poor Wind erosion Droughty Low organic matter content Too sandy	 0.00 0.00 0.12 0.16	Good	
5: Burbank-----	80	Poor Wind erosion Droughty Low organic matter content Too sandy	 0.00 0.00 0.12 0.16	Good	
6: Burbank-----	80	Poor Wind erosion Droughty Too sandy Low organic matter content	 0.00 0.01 0.10 0.12	Poor Slope	 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
7: Burke-----	85	Fair Water erosion Depth to cemented pan Low organic matter content Droughty	 0.06 0.21 0.50 0.76	Poor Depth to cemented pan	 0.00
8: Burke-----	85	Fair Water erosion Depth to cemented pan Low organic matter content Droughty	 0.06 0.21 0.50 0.76	Poor Depth to cemented pan	 0.00
9: Burke-----	85	Fair Depth to cemented pan Water erosion Droughty Low organic matter content	 0.03 0.37 0.49 0.50	Poor Depth to cemented pan	 0.00
10: Chedehap-----	85	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Good	
11: Chedehap-----	85	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Good	
12: Chedehap-----	85	Fair Low organic matter content Water erosion Droughty	 0.12 0.90 0.99	Good	
13: Cleman-----	75	Fair Water erosion Low organic matter content	 0.37 0.50	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
14: Eltopia-----	75	Fair Water erosion Low organic matter content Depth to cemented pan Droughty	 0.06 0.12 0.16 0.52	Poor Depth to cemented pan	 0.00
15: Eltopia-----	75	Fair Water erosion Low organic matter content Depth to cemented pan Droughty	 0.06 0.12 0.16 0.52	Poor Depth to cemented pan	 0.00
16: Ephrata-----	85	Fair Low organic matter content Droughty	 0.12 0.99	Good	
17: Esquatzel-----	75	Fair Water erosion Low organic matter content	 0.37 0.50	Good	
18: Farrell-----	85	Fair Low organic matter content Water erosion	 0.50 0.68	Good	
19: Farrell-----	85	Fair Low organic matter content Water erosion	 0.50 0.68	Good	
20: Farrell-----	85	Fair Low organic matter content Water erosion	 0.50 0.68	Good	
21: Farrell-----	85	Fair Low organic matter content Water erosion	 0.50 0.68	Fair Slope	 0.08
22: Farrell-----	85	Fair Low organic matter content Water erosion	 0.50 0.68	Poor Slope	 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
23: Finley-----	75	Fair		Good	
		Low organic matter content	0.12		
		Droughty	0.34		
		Water erosion	0.99		
24: Finley-----	75	Fair		Good	
		Low organic matter content	0.12		
		Droughty	0.21		
		Water erosion	0.99		
25: Finley-----	75	Fair		Good	
		Low organic matter content	0.12		
		Droughty	0.21		
		Water erosion	0.99		
26: Finley-----	35	Fair		Good	
		Low organic matter content	0.12		
		Droughty	0.21		
		Water erosion	0.99		
Burbank-----	25	Poor		Good	
		Wind erosion	0.00		
		Droughty	0.00		
		Low organic matter content	0.12		
		Too sandy	0.16		
Starbuck-----	25	Poor		Poor	
		Depth to bedrock	0.00	Depth to bedrock	0.00
		Droughty	0.00		
		Water erosion	0.37		
		Low organic matter content	0.88		
27: Finley-----	40	Fair		Good	
		Low organic matter content	0.12		
		Droughty	0.21		
		Water erosion	0.99		
Neppel-----	35	Poor		Good	
		Too alkaline	0.00		
		Water erosion	0.37		
		Low organic matter content	0.50		

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
28: Halaquepts-----	90	Poor Sodium content Too alkaline Salinity Low organic matter content Water erosion	0.00 0.00 0.00 0.12 0.37	Fair Depth to wetness	0.29
29: Hezel-----	85	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.90	Good	
30: Hezel-----	80	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.90	Fair Slope	0.08
31: Hezel-----	80	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.90	Poor Slope	0.00
32: Hezel-----	85	Poor Wind erosion Low organic matter content Too sandy Water erosion	0.00 0.12 0.16 0.90	Good	
33: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Good	
34: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Good	
35: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Good	
36: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
37: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Fair Slope	0.08
38: Kahlotus-----	75	Fair Water erosion Low organic matter content	0.37 0.50	Poor Slope	0.00
39: Kahlotus-----	45	Fair Water erosion Low organic matter content	0.37 0.50	Fair Slope	0.08
Kennewick-----	45	Fair Low organic matter content Water erosion	0.12 0.37	Fair Slope	0.08
40: Kahlotus-----	45	Fair Water erosion Low organic matter content	0.37 0.50	Poor Slope	0.00
Kennewick-----	45	Fair Low organic matter content Water erosion	0.12 0.37	Poor Slope	0.00
41: Kahlotus-----	60	Fair Water erosion Low organic matter content	0.37 0.50	Good	
Stratford-----	20	Fair Low organic matter content Water erosion	0.12 0.68	Good	
42: Kahlotus-----	60	Fair Water erosion Low organic matter content	0.37 0.50	Fair Slope	0.08
Stratford-----	20	Fair Low organic matter content Water erosion	0.12 0.68	Fair Slope	0.08
43: Kennewick-----	95	Fair Low organic matter content Water erosion	0.12 0.37	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
44: Kennewick-----	85	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
45: Kennewick-----	85	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
46: Kennewick-----	85	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
47: Kennewick-----	85	Fair Low organic matter content Water erosion	 0.12 0.37	Poor Slope	0.00
48: Kiona-----	35	Fair Low organic matter content Cobble content	 0.12 0.99	Poor Slope Cobble content	0.00 0.68
Prosser-----	30	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.79 0.96	Poor Depth to bedrock Slope	0.00 0.00
Starbuck-----	20	Poor Depth to bedrock Droughty Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock Slope	0.00 0.00
49: Kiona-----	70	Fair Low organic matter content Cobble content	 0.12 0.99	Poor Slope Cobble content	0.00 0.68
Rock outcrop-----	15	Not rated		Not rated	
50: Koehler-----	75	Poor Wind erosion Droughty Low organic matter content Too sandy Depth to cemented pan	 0.00 0.01 0.12 0.16 0.90	Poor Depth to cemented pan	0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
51: Koehler-----	75	Poor Wind erosion Droughty Low organic matter content Too sandy Depth to cemented pan	 0.00 0.00 0.12 0.16 0.80	Poor Depth to cemented pan	 0.00
52: Lickskillet-----	65	Poor Droughty Depth to bedrock Low organic matter content	 0.00 0.00 0.88	Poor Depth to bedrock Slope	 0.00 0.82
Bakeoven-----	30	Poor Droughty Depth to bedrock Stone content Cobble content	 0.00 0.00 0.18 0.92	Poor Depth to bedrock Slope Stone content	 0.00 0.82 0.99
53: Magallon-----	45	Poor Too sandy Low organic matter content Droughty Water erosion	 0.00 0.12 0.59 0.68	Fair Slope	 0.50
Stratford-----	20	Fair Low organic matter content Water erosion	 0.12 0.68	Fair Slope	 0.50
Farrell-----	15	Fair Low organic matter content Water erosion	 0.50 0.68	Fair Slope	 0.50
54: Magallon-----	45	Poor Too sandy Low organic matter content Droughty Water erosion	 0.00 0.12 0.59 0.68	Poor Slope	 0.00
Winchester-----	35	Poor Too sandy Wind erosion Low organic matter content Droughty	 0.00 0.00 0.12 0.27	Poor Slope	 0.00
Farrell-----	10	Fair Low organic matter content Water erosion	 0.50 0.68	Poor Slope	 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
55: Malaga-----	90	Poor Too sandy Droughty Low organic matter content Stone content	 0.00 0.10 0.12 0.88	Fair Stone content	 0.97
56: Nansene-----	55	Fair Water erosion	 0.37	Poor Slope	 0.00
Ritzville-----	30	Fair Water erosion Low organic matter content	 0.68 0.88	Poor Slope	 0.00
57: Neppel-----	80	Poor Too alkaline Low organic matter content Droughty Water erosion	 0.00 0.12 0.82 0.90	Good	
58: Neppel-----	80	Poor Too alkaline Low organic matter content Droughty Water erosion	 0.00 0.12 0.82 0.90	Good	
59: Neppel-----	80	Poor Too alkaline Low organic matter content Droughty Water erosion	 0.00 0.12 0.82 0.90	Good	
60: Neppel-----	80	Poor Too alkaline Water erosion Low organic matter content	 0.00 0.37 0.50	Good	
61: Neppel-----	80	Poor Too alkaline Water erosion Low organic matter content	 0.00 0.37 0.50	Good	
62: Neppel-----	80	Poor Too alkaline Water erosion Low organic matter content	 0.00 0.37 0.50	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
63: Neppel-----	80	Poor Too alkaline Water erosion Low organic matter content	0.00 0.37 0.50	Good	
64: Neppel-----	80	Poor Too alkaline Water erosion Low organic matter content	0.00 0.37 0.50	Fair Slope	0.08
65: Neppel-----	40	Poor Too alkaline Water erosion Low organic matter content	0.00 0.37 0.50	Poor Slope	0.00
Finley-----	35	Fair Low organic matter content Droughty Water erosion	0.12 0.21 0.99	Poor Slope	0.00
66: Novark-----	75	Poor Too sandy Water erosion Low organic matter content	0.00 0.06 0.12	Good	
67: Ottmar-----	75	Fair Water erosion Low organic matter content	0.06 0.88	Poor Low strength Depth to bedrock	0.00 0.39
68: Ottmar-----	75	Fair Water erosion Low organic matter content	0.06 0.88	Poor Low strength Depth to bedrock	0.00 0.39
69: Ottmar-----	75	Fair Water erosion Low organic matter content	0.06 0.88	Poor Low strength Depth to bedrock	0.00 0.39
70: Ottmar-----	85	Fair Water erosion Low organic matter content	0.37 0.88	Poor Low strength Shrink-swell	0.00 0.87

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
71: Ottmar-----	85	Fair		Poor	
		Water erosion	0.37	Low strength	0.00
		Low organic matter content	0.88	Shrink-swell	0.87
72: Ottmar-----	90	Fair		Poor	
		Water erosion	0.37	Low strength	0.00
		Low organic matter content	0.88	Shrink-swell	0.87
73: Ottmar-----	90	Fair		Poor	
		Low organic matter content	0.88	Low strength	0.00
		Water erosion	0.99	Shrink-swell	0.87
74: Ottmar-----	90	Fair		Poor	
		Low organic matter content	0.88	Low strength	0.00
		Water erosion	0.99	Shrink-swell	0.87
75: Ottmar-----	40	Fair		Poor	
		Water erosion	0.06	Low strength	0.00
		Low organic matter content	0.88	Depth to bedrock	0.39
Schlomer-----	35	Fair		Poor	
		Water erosion	0.06	Depth to bedrock	0.00
		Depth to bedrock	0.84	Low strength	0.00
		Low organic matter content	0.88		
76: Pits-----	100	Not rated		Not rated	
77: Prosser-----	90	Fair		Poor	
		Water erosion	0.06	Depth to bedrock	0.00
		Low organic matter content	0.12		
		Depth to bedrock	0.29		
		Droughty	0.35		
78: Prosser-----	90	Fair		Poor	
		Water erosion	0.06	Depth to bedrock	0.00
		Low organic matter content	0.12		
		Depth to bedrock	0.29		
		Droughty	0.35		

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
79: Prosser-----	90	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.35	Poor Depth to bedrock	 0.00
80: Prosser-----	75	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.79 0.96	Poor Depth to bedrock	 0.00
81: Prosser-----	75	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.79 0.96	Poor Depth to bedrock	 0.00
82: Prosser-----	75	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.79 0.96	Poor Depth to bedrock	 0.00
83: Prosser-----	35	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.79 0.96	Poor Depth to bedrock	 0.00
Starbuck-----	30	Poor Depth to bedrock Droughty Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock	 0.00
Rock outcrop-----	15	Not rated		Not rated	
84: Prosser-----	40	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.35	Poor Depth to bedrock	 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
84: Starbuck-----	30	Poor Droughty Depth to bedrock Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock	 0.00
Rock outcrop-----	15	Not rated		Not rated	
85: Quincy-----	90	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Good	
86: Quincy-----	90	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Fair Slope	0.08
87: Quincy-----	90	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Poor Slope	0.00
88: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.61	Good	
89: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Good	
90: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Fair Slope	0.08

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
91: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Poor Slope	 0.00
92: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy	 0.00 0.12 0.28	Good	
93: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy	 0.00 0.12 0.28	Good	
94: Quincy-----	85	Poor Wind erosion Low organic matter content Too sandy	 0.00 0.12 0.28	Fair Slope	0.50
95: Quincy, cemented substratum-----	55	Poor Too sandy Wind erosion Low organic matter content Droughty	 0.00 0.00 0.12 0.21	Fair Depth to cemented pan	0.16
Quincy, very gravelly substratum	40	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.01 0.16 0.39	Good	
96: Quincy-----	55	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Fair Slope	0.08
Dune land-----	35	Not rated		Fair Slope	0.08

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
97: Quincy-----	50	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Good	
Hezel-----	25	Poor Wind erosion Low organic matter content Water erosion	 0.00 0.12 0.90	Good	
98: Quincy-----	65	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Fair Slope	0.08
Hezel-----	30	Poor Wind erosion Low organic matter content Water erosion	 0.00 0.12 0.90	Fair Slope	0.08
99: Quincy-----	65	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Fair Slope	0.08
Hezel-----	30	Poor Wind erosion Low organic matter content Too sandy Water erosion	 0.00 0.12 0.16 0.90	Fair Slope	0.08
100: Quincy-----	45	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Good	
Hezel-----	30	Poor Wind erosion Low organic matter content Water erosion	 0.00 0.12 0.90	Good	
Warden-----	15	Fair Water erosion Low organic matter content	 0.06 0.12	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
101: Quincy-----	40	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Good	
Quinton-----	25	Poor Wind erosion Droughty Low organic matter content Depth to bedrock Too sandy	 0.00 0.00 0.12 0.16 0.16	Poor Depth to bedrock	0.00
Rock outcrop-----	15	Not rated		Not rated	
102: Quincy-----	60	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.75	Good	
Timmerman-----	35	Fair Low organic matter content Too sandy Droughty	 0.12 0.20 0.66	Good	
103: Quincy-----	45	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.28 0.59	Good	
Wanser-----	25	Poor Too sandy Wind erosion Low organic matter content Droughty Salinity	 0.00 0.00 0.01 0.73 0.88	Poor Depth to wetness	0.00
104: Rinquin-----	75	Poor Wind erosion Droughty Low organic matter content Too sandy Depth to bedrock	 0.00 0.00 0.12 0.14 0.21	Poor Depth to bedrock	0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
105: Ritzcal-----	45	Fair Low organic matter content Water erosion	0.12 0.37	Fair Slope	0.08
Ritzville-----	45	Fair Water erosion Low organic matter content	0.68 0.88	Fair Slope	0.08
106: Ritzcal-----	45	Fair Low organic matter content Water erosion	0.12 0.37	Poor Slope	0.00
Ritzville-----	45	Fair Water erosion Low organic matter content	0.68 0.88	Poor Slope	0.00
107: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
108: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
109: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
110: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
111: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Fair Slope	0.08
112: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Poor Slope	0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
113: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
114: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
115: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Good	
116: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Fair Slope	0.08
117: Ritzville-----	85	Fair Water erosion Low organic matter content	0.68 0.88	Poor Slope	0.00
118: Ritzville-----	55	Fair Water erosion Low organic matter content	0.68 0.88	Poor Slope	0.00
Nansene-----	30	Fair Water erosion	0.37	Poor Slope	0.00
119: Riverwash-----	100	Not rated		Not rated	
120: Roloff-----	75	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock	0.00
121: Roloff-----	75	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock Slope	0.00 0.08
122: Roloff-----	90	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock Slope	0.00 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
123: Roloff-----	40	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock	0.00
Lickskillet-----	30	Poor Droughty Depth to bedrock Low organic matter content	0.00 0.00 0.88	Poor Depth to bedrock	0.00
Rock outcrop-----	15	Not rated		Not rated	
124: Roloff-----	60	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	20	Not rated		Not rated	
125: Roloff-----	50	Fair Depth to bedrock Water erosion Droughty	0.21 0.68 0.85	Poor Depth to bedrock Slope	0.00 0.00
Rock outcrop-----	25	Not rated		Not rated	
Rubble land-----	15	Not rated		Not rated	
126: Royal-----	85	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.68	Good	
127: Royal-----	85	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.68	Fair Slope	0.50
128: Royal-----	85	Fair Low organic matter content Water erosion	0.12 0.68	Good	
129: Royal-----	85	Fair Low organic matter content Water erosion	0.12 0.68	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
130: Royal-----	85	Fair Low organic matter content Water erosion	 0.12 0.68	Good	
131: Royal-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
132: Royal-----	50	Fair Low organic matter content Water erosion	 0.12 0.68	Fair Slope	0.08
Timmerman-----	35	Fair Low organic matter content Too sandy Droughty	 0.12 0.20 0.66	Fair Slope	0.08
133: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
134: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
135: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
136: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Good	
137: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Fair Slope	0.08
138: Sagehill-----	75	Fair Low organic matter content Water erosion	 0.12 0.37	Fair Depth to cemented pan	0.16

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
139: Sagehill-----	75	Fair Low organic matter content Water erosion	0.12 0.37	Fair Depth to cemented pan	0.16
140: Sagehill-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
141: Sagehill-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
142: Sagehill-----	45	Fair Low organic matter content Water erosion	0.12 0.37	Good	
Kennewick, gravelly substratum-----	30	Fair Low organic matter content Water erosion	0.12 0.37	Good	
143: Sagehill-----	35	Fair Low organic matter content Water erosion	0.12 0.37	Poor Slope	0.00
Kennewick-----	30	Fair Low organic matter content Water erosion	0.12 0.37	Poor Slope	0.00
Shano-----	25	Fair Water erosion Low organic matter content	0.06 0.12	Poor Slope	0.00
144: Sagemoor-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
145: Sagemoor-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
146: Sagemoor-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
147: Schlomer-----	75	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength	0.00 0.00
148: Schlomer-----	75	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength	0.00 0.00
149: Schlomer-----	75	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength	0.00 0.00
150: Schlomer-----	75	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength	0.00 0.00
151: Schlomer-----	75	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength Slope	0.00 0.00 0.50
152: Shano-----	85	Fair Water erosion Low organic matter content	0.06 0.12	Good	
153: Shano-----	85	Fair Water erosion Low organic matter content	0.06 0.12	Good	
154: Shano-----	85	Fair Water erosion Low organic matter content	0.06 0.12	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
155: Shano-----	85	Fair Water erosion Low organic matter content	0.06 0.12	Good	
156: Shano-----	75	Fair Water erosion Low organic matter content	0.06 0.12	Fair Slope	0.50
157: Shano-----	75	Fair Water erosion Low organic matter content	0.06 0.12	Poor Slope	0.00
158: Shano-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
159: Shano-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
160: Shano-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
161: Shano-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Good	
162: Shano-----	75	Fair Low organic matter content Water erosion	0.12 0.37	Fair Slope	0.08
163: Shano-----	40	Fair Water erosion Low organic matter content	0.06 0.12	Fair Slope	0.08
Kennewick-----	35	Fair Low organic matter content Water erosion	0.12 0.37	Fair Slope	0.08

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
164: Shano-----	40	Fair Water erosion Low organic matter content	 0.06 0.12	Poor Slope	 0.00
Kennewick-----	40	Fair Low organic matter content Water erosion	 0.12 0.37	Poor Slope	 0.00
165: Starbuck-----	85	Poor Droughty Depth to bedrock Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock	 0.00
166: Starbuck-----	85	Poor Depth to bedrock Droughty Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock	 0.00
167: Starbuck-----	50	Poor Droughty Depth to bedrock Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock	 0.00
Prosser-----	40	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.35	Poor Depth to bedrock	 0.00
168: Starbuck-----	40	Poor Droughty Depth to bedrock Low organic matter content Water erosion	 0.00 0.00 0.12 0.37	Poor Depth to bedrock	 0.00
Prosser-----	25	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.67	Poor Depth to bedrock	 0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
168: Finley-----	15	Fair Low organic matter content Droughty Water erosion	 0.12 0.21 0.99	Good	
169: Starbuck-----	40	Poor Depth to bedrock Droughty Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock Slope	 0.00 0.08
Prosser-----	30	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.66	Poor Depth to bedrock Slope	 0.00 0.08
Rock outcrop-----	15	Not rated		Not rated	
170: Starbuck-----	40	Poor Droughty Depth to bedrock Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock Slope	 0.00 0.08
Prosser-----	30	Fair Water erosion Low organic matter content Depth to bedrock Droughty	 0.06 0.12 0.29 0.35	Poor Depth to bedrock Slope	 0.00 0.08
Rock outcrop-----	15	Not rated		Not rated	
171: Starbuck-----	40	Poor Depth to bedrock Droughty Water erosion Low organic matter content	 0.00 0.00 0.37 0.88	Poor Depth to bedrock Slope	 0.00 0.08
Roloff-----	30	Fair Depth to bedrock Water erosion Droughty	 0.21 0.68 0.85	Poor Depth to bedrock Slope	 0.00 0.08
Rock outcrop-----	15	Not rated		Not rated	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
172: Stratford-----	75	Fair Low organic matter content Water erosion Droughty	 0.12 0.68 0.95	Good	
173: Stratford-----	75	Fair Low organic matter content Water erosion Droughty	 0.12 0.68 0.95	Good	
174: Stratford-----	75	Fair Low organic matter content Water erosion Droughty	 0.12 0.68 0.99	Fair Slope	0.08
175: Stratford-----	85	Fair Low organic matter content Droughty	 0.12 0.25	Good	
176: Stratford-----	85	Poor Too sandy Droughty Low organic matter content Stone content	 0.00 0.12 0.12 0.93	Fair Stone content	0.41
177: Tauncal-----	85	Fair Water erosion Low organic matter content Depth to cemented pan	 0.06 0.12 0.94	Poor Depth to cemented pan	0.00
178: Tauncal-----	85	Fair Water erosion Low organic matter content Depth to cemented pan	 0.06 0.12 0.94	Poor Depth to cemented pan	0.00
179: Tauncal-----	85	Fair Water erosion Low organic matter content Depth to cemented pan	 0.06 0.12 0.94	Poor Depth to cemented pan	0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
180: Tauncal-----	85	Fair Water erosion Low organic matter content Depth to cemented pan	 0.06 0.12 0.94	Poor Depth to cemented pan Slope	 0.00 0.08
181: Taunton-----	85	Fair Water erosion Low organic matter content Carbonate content Depth to cemented pan Droughty	 0.06 0.12 0.97 0.99 0.99	Poor Depth to cemented pan	 0.00
182: Taunton-----	85	Fair Water erosion Low organic matter content Carbonate content Depth to cemented pan Droughty	 0.06 0.12 0.97 0.99 0.99	Poor Depth to cemented pan	 0.00
183: Timmerman-----	85	Fair Low organic matter content Too sandy Droughty	 0.12 0.20 0.66	Good	
184: Timmerman-----	85	Fair Low organic matter content Too sandy Droughty	 0.12 0.20 0.66	Good	
185: Timmerman-----	85	Fair Low organic matter content Too sandy Droughty	 0.12 0.20 0.66	Good	
186: Urban land-----	65	Not rated		Not rated	
Torripsamments-----	25	Poor Wind erosion Low organic matter content Too sandy Droughty	 0.00 0.12 0.23 0.89	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
187: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Good	
188: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Good	
189: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Good	
190: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Good	
191: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Fair Slope	0.08
192: Wacota-----	90	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Poor Slope	0.00
193: Wacota-----	90	Poor Wind erosion Low organic matter content Water erosion	0.00 0.12 0.37	Good	
194: Wacota-----	40	Poor Wind erosion Water erosion Low organic matter content	0.00 0.37 0.50	Fair Slope	0.50
Ritzcal-----	35	Fair Low organic matter content Water erosion	0.12 0.37	Fair Slope	0.50

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
195: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
196: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
197: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
198: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
199: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Fair Slope	0.50
200: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Poor Slope	0.00
201: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
202: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
203: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	
204: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Good	

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
205: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Fair Slope	0.50
206: Warden-----	90	Fair Water erosion Low organic matter content	0.06 0.12	Poor Slope	0.00
207: Warden-----	90	Fair Low organic matter content Water erosion	0.12 0.37	Fair Depth to cemented pan	0.01
208: Warden-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Fair Depth to cemented pan	0.01
209: Warden-----	85	Fair Low organic matter content Water erosion	0.12 0.37	Fair Depth to cemented pan	0.01
210: Wiehl-----	85	Fair Depth to bedrock Droughty Low organic matter content Water erosion	0.05 0.11 0.12 0.37	Poor Depth to bedrock	0.00
211: Wiehl-----	75	Fair Low organic matter content Depth to bedrock Droughty Water erosion	0.12 0.16 0.24 0.37	Poor Depth to bedrock	0.00
212: Wiehl-----	75	Fair Low organic matter content Depth to bedrock Droughty Water erosion	0.12 0.16 0.24 0.37	Poor Depth to bedrock Slope	0.00 0.00
213: Wiehl-----	85	Fair Low organic matter content Water erosion Depth to bedrock	0.12 0.37 0.93	Poor Depth to bedrock	0.00

Table 11b.--Construction Materials (Part 2)--Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material	Potential source of roadfill		
		Rating class and limiting features	Value	Rating class and limiting features	Value
214: Wiehl-----	85	Fair Low organic matter content Water erosion Depth to bedrock	0.12 0.37 0.93	Poor Depth to bedrock	0.00
215: Wiehl-----	40	Fair Low organic matter content Water erosion Depth to bedrock	0.12 0.37 0.93	Poor Depth to bedrock Slope	0.00 0.08
Schlomer-----	35	Fair Water erosion Depth to bedrock Low organic matter content	0.06 0.84 0.88	Poor Depth to bedrock Low strength Slope	0.00 0.00 0.08
216: Willis-----	85	Fair Depth to cemented pan Water erosion Droughty	0.03 0.37 0.46	Poor Depth to cemented pan	0.00
217: Winchester-----	90	Poor Too sandy Wind erosion Low organic matter content Droughty	0.00 0.00 0.12 0.27	Good	
218: Winchester-----	90	Poor Too sandy Wind erosion Low organic matter content Droughty	0.00 0.00 0.12 0.27	Good	
219: Xeric Torriorthents	75	Fair Low organic matter content Water erosion	0.12 0.37	Poor Slope Shrink-swell	0.00 0.87
220: Water-----	100	Not rated		Not rated	
221: Dam-----	100	Not rated		Not rated	

Table 12.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1: Alderdale-----	85	Very limited Seepage Depth to bedrock	1.00 0.69	Very limited Large stones content Thin layer Seepage	1.00 0.70 0.54	Very limited Depth to water	1.00
2: Aguents-----	65	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.09	Very limited Cutbanks cave	1.00
Halaquepts-----	30	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping	1.00 1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
3: Badland-----	45	Not rated		Not rated		Not rated	
Xeric Torriorthents	40	Very limited Slope Seepage	1.00 0.70	Very limited Piping	0.99	Very limited Depth to water	1.00
4: Burbank-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Depth to water	1.00
5: Burbank-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Depth to water	1.00
6: Burbank-----	80	Very limited Seepage Slope	1.00 0.28	Somewhat limited Seepage	0.91	Very limited Depth to water	1.00
7: Burke-----	85	Somewhat limited Depth to cemented pan Seepage	0.95 0.70	Very limited Piping Thin layer	1.00 0.95	Very limited Depth to water	1.00
8: Burke-----	85	Somewhat limited Depth to cemented pan Seepage	0.95 0.70	Very limited Piping Thin layer	1.00 0.95	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9: Burke-----	85	Somewhat limited Depth to cemented pan Seepage	0.99 0.70	Very limited Piping Thin layer	1.00 0.99	Very limited Depth to water	1.00
10: Chedehap-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.54	Very limited Depth to water	1.00
11: Chedehap-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.54	Very limited Depth to water	1.00
12: Chedehap-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.54	Very limited Depth to water	1.00
13: Cleman-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.03	Very limited Depth to water	1.00
14: Eltopia-----	75	Very limited Seepage Depth to cemented pan	1.00 0.96	Very limited Piping Thin layer Seepage	1.00 0.96 0.44	Very limited Depth to water	1.00
15: Eltopia-----	75	Very limited Seepage Depth to cemented pan	1.00 0.96	Very limited Piping Thin layer Seepage	1.00 0.96 0.44	Very limited Depth to water	1.00
16: Ephrata-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.66	Very limited Depth to water	1.00
17: Esquatzel-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
18: Farrell-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
19: Farrell-----	85	Very limited Seepage	1.00	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
20: Farrell-----	85	Very limited Seepage Slope	1.00 0.01	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
21: Farrell-----	85	Very limited Seepage Slope	1.00 0.21	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
22: Farrell-----	85	Very limited Seepage Slope	1.00 0.97	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
23: Finley-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
24: Finley-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
25: Finley-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
26: Finley-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
Burbank-----	25	Very limited Seepage	1.00	Somewhat limited Seepage	0.91	Very limited Depth to water	1.00
Starbuck-----	25	Very limited Depth to bedrock	1.00	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
27: Finley-----	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
Neppel-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
28: Halaquepts-----	90	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone Piping Salinity	1.00 1.00 1.00	Somewhat limited Salinity and saturated zone Slow refill Cutbanks cave	0.78 0.30 0.10
29: Hezel-----	85	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00
30: Hezel-----	80	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00
31: Hezel-----	80	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32: Hezel-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Depth to water	1.00
33: Kahlotus-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
34: Kahlotus-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
35: Kahlotus-----	75	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
36: Kahlotus-----	75	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
37: Kahlotus-----	75	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
38: Kahlotus-----	75	Somewhat limited Slope Seepage	0.72 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
39: Kahlotus-----	45	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
Kennewick-----	45	Somewhat limited Slope Seepage	0.21 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
40: Kahlotus-----	45	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Kennewick-----	45	Somewhat limited Slope Seepage	0.97 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
41: Kahlotus-----	60	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Stratford-----	20	Very limited Seepage	1.00	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
42: Kahlotus-----	60	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42: Stratford-----	20	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
43: Kennewick-----	95	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
44: Kennewick-----	85	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
45: Kennewick-----	85	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
46: Kennewick-----	85	Somewhat limited Seepage Slope	0.05 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
47: Kennewick-----	85	Somewhat limited Slope Seepage	0.28 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
48: Kiona-----	35	Somewhat limited Slope Seepage	0.97 0.70	Somewhat limited Large stones content	0.03	Very limited Depth to water	1.00
Prosser-----	30	Somewhat limited Slope Depth to bedrock Seepage	0.97 0.77 0.70	Very limited Piping Thin layer	1.00 0.77	Very limited Depth to water	1.00
Starbuck-----	20	Very limited Depth to bedrock Slope	1.00 0.97	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
49: Kiona-----	70	Very limited Slope Seepage	1.00 0.70	Somewhat limited Large stones content	0.03	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
50: Koehler-----	75	Very limited Seepage Depth to cemented pan	1.00 0.70	Somewhat limited Thin layer Seepage	0.70 0.10	Very limited Depth to water	1.00
51: Koehler-----	75	Very limited Seepage Depth to cemented pan	1.00 0.77	Somewhat limited Thin layer Seepage	0.77 0.03	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
52: Lickskillet-----	65	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Large stones content	1.00 0.02	Very limited Depth to water	1.00
Bakeoven-----	30	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Large stones content	1.00 0.80	Very limited Depth to water	1.00
53: Magallon-----	45	Very limited Seepage Slope	1.00 0.12	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
Stratford-----	20	Very limited Seepage Slope	1.00 0.12	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
Farrell-----	15	Very limited Seepage Slope	1.00 0.12	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
54: Magallon-----	45	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
Winchester-----	35	Very limited Seepage Slope	1.00 0.97	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
Farrell-----	10	Very limited Seepage Slope	1.00 0.72	Very limited Piping Seepage	1.00 0.91	Very limited Depth to water	1.00
55: Malaga-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
56: Nansene-----	55	Very limited Slope Seepage	1.00 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Ritzville-----	30	Very limited Slope Seepage	1.00 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
57: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
58: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
59: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
61: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
62: Neppel-----	80	Very limited Seepage	1.00	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
63: Neppel-----	80	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
64: Neppel-----	80	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
65: Neppel-----	40	Very limited Seepage Slope	1.00 0.41	Somewhat limited Seepage	0.75	Very limited Depth to water	1.00
Finley-----	35	Very limited Seepage Slope	1.00 0.64	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
66: Novark-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.34	Very limited Depth to water	1.00
67: Ottmar-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.01	Somewhat limited Piping Thin layer	0.90 0.16	Very limited Depth to water	1.00
68: Ottmar-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.01	Somewhat limited Piping Thin layer	0.90 0.16	Very limited Depth to water	1.00
69: Ottmar-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.01	Somewhat limited Piping Thin layer	0.90 0.16	Very limited Depth to water	1.00
70: Ottmar-----	85	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.20	Very limited Depth to water	1.00
71: Ottmar-----	85	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.20	Very limited Depth to water	1.00
72: Ottmar-----	90	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.20	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73: Ottmar-----	90	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.12	Very limited Depth to water	1.00
74: Ottmar-----	90	Somewhat limited Seepage	0.05	Somewhat limited Piping	0.12	Very limited Depth to water	1.00
75: Ottmar-----	40	Somewhat limited Seepage Depth to bedrock	0.70 0.01	Somewhat limited Piping Thin layer	0.90 0.16	Very limited Depth to water	1.00
Schlomer-----	35	Somewhat limited Seepage Depth to bedrock	0.70 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
76: Pits-----	100	Not rated		Not rated		Not rated	
77: Prosser-----	90	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
78: Prosser-----	90	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
79: Prosser-----	90	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
80: Prosser-----	75	Somewhat limited Depth to bedrock Seepage	0.77 0.70	Very limited Piping Thin layer	1.00 0.77	Very limited Depth to water	1.00
81: Prosser-----	75	Somewhat limited Depth to bedrock Seepage	0.77 0.70	Very limited Piping Thin layer	1.00 0.77	Very limited Depth to water	1.00
82: Prosser-----	75	Somewhat limited Depth to bedrock Seepage	0.77 0.70	Very limited Piping Thin layer	1.00 0.77	Very limited Depth to water	1.00
83: Prosser-----	35	Somewhat limited Depth to bedrock Seepage	0.77 0.70	Very limited Piping Thin layer	1.00 0.77	Very limited Depth to water	1.00
Starbuck-----	30	Very limited Depth to bedrock	1.00	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84: Prosser-----	40	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
Starbuck-----	30	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
85: Quincy-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
86: Quincy-----	90	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
87: Quincy-----	90	Very limited Seepage Slope	1.00 0.94	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
88: Quincy-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
89: Quincy-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
90: Quincy-----	85	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
91: Quincy-----	85	Very limited Seepage Slope	1.00 0.94	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
92: Quincy-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.02	Very limited Depth to water	1.00
93: Quincy-----	85	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.02	Very limited Depth to water	1.00
94: Quincy-----	85	Very limited Seepage Slope	1.00 0.12	Somewhat limited Seepage	0.02	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95: Quincy, cemented substratum-----	55	Very limited Seepage Depth to cemented pan	1.00 0.26	Somewhat limited Seepage Thin layer	0.28 0.26	Very limited Depth to water	1.00
Quincy, very gravelly substratum	40	Very limited Seepage	1.00	Somewhat limited Seepage	0.19	Very limited Depth to water	1.00
96: Quincy-----	55	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
Dune land-----	35	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.40	Very limited Depth to water	1.00
97: Quincy-----	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
Hezel-----	25	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00
98: Quincy-----	65	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
Hezel-----	30	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00
99: Quincy-----	65	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
Hezel-----	30	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
100: Quincy-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
Hezel-----	30	Somewhat limited Seepage	0.70	Very limited Piping Seepage	1.00 0.08	Very limited Depth to water	1.00
Warden-----	15	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
101: Quincy-----	40	Very limited Seepage Slope	1.00 0.03	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101: Quinton-----	25	Very limited Seepage Depth to bedrock Slope	1.00 0.96 0.03	Somewhat limited Thin layer Seepage	0.96 0.03	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
102: Quincy-----	60	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
Timmerman-----	35	Very limited Seepage	1.00	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
103: Quincy-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.30	Very limited Depth to water	1.00
Wanser-----	25	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage Salinity	1.00 0.40 0.12	Very limited Cutbanks cave Salinity and saturated zone	1.00 0.01
104: Rinquin-----	75	Very limited Seepage Depth to bedrock	1.00 0.23	Somewhat limited Thin layer Seepage	0.95 0.03	Very limited Depth to water	1.00
105: Ritzcal-----	45	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
Ritzville-----	45	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
106: Ritzcal-----	45	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Ritzville-----	45	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
107: Ritzville-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
108: Ritzville-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
109: Ritzville-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
110: Ritzville-----	85	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
111: Ritzville-----	85	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
112: Ritzville-----	85	Somewhat limited Slope Seepage	0.72 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
113: Ritzville-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
114: Ritzville-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
115: Ritzville-----	85	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
116: Ritzville-----	85	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
117: Ritzville-----	85	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
118: Ritzville-----	55	Somewhat limited Slope Seepage	0.82 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Nansene-----	30	Somewhat limited Slope Seepage	0.82 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
119: Riverwash-----	100	Not limited		Not rated		Not rated	
120: Roloff-----	75	Somewhat limited Depth to bedrock Seepage	0.95 0.70	Very limited Piping Thin layer	1.00 0.95	Very limited Depth to water	1.00
121: Roloff-----	75	Somewhat limited Depth to bedrock Seepage Slope	0.95 0.70 0.21	Very limited Piping Thin layer	1.00 0.95	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122: Rolloff-----	90	Somewhat limited Slope Depth to bedrock Seepage	 0.97 0.95 0.70	Very limited Piping Thin layer	 1.00 0.95	Very limited Depth to water	 1.00
123: Rolloff-----	40	Somewhat limited Depth to bedrock Seepage	 0.95 0.70	Very limited Piping Thin layer	 1.00 0.95	Very limited Depth to water	 1.00
Lickskillet-----	30	Very limited Depth to bedrock	 1.00	Very limited Thin layer Large stones content	 1.00 0.02	Very limited Depth to water	 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
124: Rolloff-----	60	Very limited Slope Depth to bedrock Seepage	 1.00 0.95 0.70	Very limited Piping Thin layer	 1.00 0.95	Very limited Depth to water	 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
125: Rolloff-----	50	Very limited Slope Depth to bedrock Seepage	 1.00 0.95 0.70	Very limited Piping Thin layer	 1.00 0.95	Very limited Depth to water	 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Rubble land-----	15	Not rated		Not rated		Not rated	
126: Royal-----	85	Very limited Seepage	 1.00	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00
127: Royal-----	85	Very limited Seepage Slope	 1.00 0.12	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00
128: Royal-----	85	Very limited Seepage	 1.00	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00
129: Royal-----	85	Very limited Seepage	 1.00	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00
130: Royal-----	85	Very limited Seepage	 1.00	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00
131: Royal-----	75	Very limited Seepage	 1.00	Somewhat limited Seepage	 0.06	Very limited Depth to water	 1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
132: Royal-----	50	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.06	Very limited Depth to water	1.00
Timmerman-----	35	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
133: Sagehill-----	75	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Depth to water	1.00
134: Sagehill-----	75	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Depth to water	1.00
135: Sagehill-----	75	Very limited Seepage	1.00	Very limited Piping	1.00	Very limited Depth to water	1.00
136: Sagehill-----	75	Very limited Seepage Slope	1.00 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
137: Sagehill-----	75	Very limited Seepage Slope	1.00 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
138: Sagehill-----	75	Very limited Seepage Depth to cemented pan	1.00 0.26	Very limited Piping Thin layer	1.00 0.26	Very limited Depth to water	1.00
139: Sagehill-----	75	Very limited Seepage Depth to cemented pan	1.00 0.26	Very limited Piping Thin layer	1.00 0.26	Very limited Depth to water	1.00
140: Sagehill-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
141: Sagehill-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
142: Sagehill-----	45	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
Kennewick, gravelly substratum-----	30	Very limited Seepage	1.00	Somewhat limited Seepage	0.96	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
143: Sagehill-----	35	Very limited Seepage Slope	1.00 0.82	Very limited Piping	1.00	Very limited Depth to water	1.00
Kennewick-----	30	Somewhat limited Slope Seepage	0.82 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
Shano-----	25	Somewhat limited Slope Seepage	0.82 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
144: Sagemoor-----	90	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
145: Sagemoor-----	90	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
146: Sagemoor-----	90	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
147: Schlomer-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
148: Schlomer-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
149: Schlomer-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
150: Schlomer-----	75	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.05 0.01	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
151: Schlomer-----	75	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.12 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00
152: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
153: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
154: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
155: Shano-----	85	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
156: Shano-----	75	Somewhat limited Seepage Slope	0.70 0.12	Very limited Piping	1.00	Very limited Depth to water	1.00
157: Shano-----	75	Somewhat limited Seepage Slope	0.70 0.64	Very limited Piping	1.00	Very limited Depth to water	1.00
158: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
159: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
160: Shano-----	85	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
161: Shano-----	85	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
162: Shano-----	75	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
163: Shano-----	40	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
Kennewick-----	35	Somewhat limited Slope Seepage	0.21 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
164: Shano-----	40	Somewhat limited Slope Seepage	0.97 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
Kennewick-----	40	Somewhat limited Slope Seepage	0.97 0.05	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
165: Starbuck-----	85	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00	Very limited Depth to water	1.00
166: Starbuck-----	85	Very limited Depth to bedrock	1.00	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
167: Starbuck-----	50	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00	Very limited Depth to water	1.00
Prosser-----	40	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
168: Starbuck-----	40	Very limited Depth to bedrock	1.00	Very limited Thin layer Piping	1.00 1.00	Very limited Depth to water	1.00
Prosser-----	25	Somewhat limited Depth to bedrock Seepage	0.93 0.70	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
Finley-----	15	Very limited Seepage Slope	1.00 0.01	Somewhat limited Seepage	0.86	Very limited Depth to water	1.00
169: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
Prosser-----	30	Somewhat limited Depth to bedrock Seepage Slope	0.93 0.70 0.21	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
170: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Thin layer Piping	1.00 1.00	Very limited Depth to water	1.00
Prosser-----	30	Somewhat limited Depth to bedrock Seepage Slope	0.93 0.70 0.21	Very limited Piping Thin layer	1.00 0.93	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171: Starbuck-----	40	Very limited Depth to bedrock Slope	1.00 0.21	Very limited Piping Thin layer	1.00 1.00	Very limited Depth to water	1.00
Roloff-----	30	Somewhat limited Depth to bedrock Seepage Slope	0.95 0.70 0.21	Very limited Piping Thin layer	1.00 0.95	Very limited Depth to water	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
172: Stratford-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
173: Stratford-----	75	Very limited Seepage	1.00	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
174: Stratford-----	75	Very limited Seepage Slope	1.00 0.21	Somewhat limited Seepage	0.47	Very limited Depth to water	1.00
175: Stratford-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
176: Stratford-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
177: Tauncal-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.66	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
178: Tauncal-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.66	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
179: Tauncal-----	85	Somewhat limited Seepage Depth to cemented pan Slope	0.70 0.66 0.01	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
180: Tauncal-----	85	Somewhat limited Seepage Depth to cemented pan Slope	0.70 0.66 0.21	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
181: Taunton-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.56	Somewhat limited Thin layer	0.56	Very limited Depth to water	1.00
182: Taunton-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.56	Somewhat limited Thin layer	0.56	Very limited Depth to water	1.00
183: Timmerman-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
184: Timmerman-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
185: Timmerman-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
186: Urban land-----	65	Not rated		Not rated		Not rated	
Torripsamments-----	25	Very limited Seepage	1.00	Somewhat limited Seepage	0.34	Very limited Depth to water	1.00
187: Wacota-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
188: Wacota-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
189: Wacota-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
190: Wacota-----	90	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
191: Wacota-----	90	Somewhat limited Seepage Slope	0.70 0.21	Very limited Piping	1.00	Very limited Depth to water	1.00
192: Wacota-----	90	Somewhat limited Slope Seepage	0.72 0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
193: Wacota-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
194: Wacota-----	40	Somewhat limited Seepage Slope	0.70 0.12	Very limited Piping	1.00	Very limited Depth to water	1.00
Ritzcal-----	35	Somewhat limited Seepage Slope	0.70 0.12	Very limited Piping	1.00	Very limited Depth to water	1.00
195: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
196: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
197: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
198: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
199: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.12	Very limited Piping	1.00	Very limited Depth to water	1.00
200: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.64	Very limited Piping	1.00	Very limited Depth to water	1.00
201: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
202: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
203: Warden-----	90	Somewhat limited Seepage	0.70	Very limited Piping	1.00	Very limited Depth to water	1.00
204: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.01	Very limited Piping	1.00	Very limited Depth to water	1.00
205: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.12	Very limited Piping	1.00	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
206: Warden-----	90	Somewhat limited Seepage Slope	0.70 0.64	Very limited Piping	1.00	Very limited Depth to water	1.00
207: Warden-----	90	Somewhat limited Seepage Depth to cemented pan	0.70 0.42	Very limited Piping Thin layer	1.00 0.42	Very limited Depth to water	1.00
208: Warden-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.42	Very limited Piping Thin layer	1.00 0.42	Very limited Depth to water	1.00
209: Warden-----	85	Somewhat limited Seepage Depth to cemented pan	0.70 0.42	Very limited Piping Thin layer	1.00 0.42	Very limited Depth to water	1.00
210: Wiehl-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.34	Very limited Piping Thin layer	1.00 0.99	Very limited Depth to water	1.00
211: Wiehl-----	75	Somewhat limited Seepage Depth to bedrock	0.70 0.26	Very limited Piping Thin layer	1.00 0.96	Very limited Depth to water	1.00
212: Wiehl-----	75	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.28 0.26	Very limited Piping Thin layer	1.00 0.96	Very limited Depth to water	1.00
213: Wiehl-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.03	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
214: Wiehl-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.03	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
215: Wiehl-----	40	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.03	Very limited Piping Thin layer	1.00 0.66	Very limited Depth to water	1.00
Schlomer-----	35	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.21 0.05	Somewhat limited Piping Thin layer	0.93 0.74	Very limited Depth to water	1.00

Table 12.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
216: Willis-----	85	Somewhat limited Depth to cemented pan Seepage	0.99 0.70	Very limited Piping Thin layer	1.00 0.99	Very limited Depth to water	1.00
217: Winchester-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
218: Winchester-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.54	Very limited Depth to water	1.00
219: Xeric Torriorthents	75	Very limited Slope Seepage	1.00 0.70	Very limited Piping	0.99	Very limited Depth to water	1.00
220: Water-----	100	Not rated		Not rated		Not rated	
221: Dam-----	100	Not rated		Not rated		Not rated	

Table 13.--Engineering Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
1: Alderdale-----	0-3	Extremely cobble loamy sand	GP-GM	A-1	0-10	55-70	20-40	15-30	10-25	5-10	0-10	NP
	3-30	Extremely cobble fine sand, extremely cobble loamy sand	GP, GP-GM	A-1	0-10	55-70	20-40	15-30	10-25	0-10	0-10	NP
	30-35	Extremely cobble coarse sand, extremely cobble loamy sand, extremely cobble sand	GM, GP-GM	A-1	0-10	55-70	20-40	15-30	10-25	5-15	0-10	NP
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
2: Aguents-----	0-4	Fine sand	SM	A-1, A-2	0	0	100	90-100	45-80	10-15	0-10	NP
	4-20	Fine sand, loamy fine sand	SM	A-1, A-2	0	0	100	90-100	45-80	10-30	0-10	NP
	20-60	Very fine sandy loam, loamy fine sand, silt loam	ML, SM	A-2, A-4	0	0	100	90-100	65-95	25-70	15-25	NP-5
Halaquepts-----	0-12	Loam	ML	A-4	0	0	100	95-100	80-95	65-85	20-30	NP-5
	12-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	95-100	60-90	20-30	NP-5
3: Badland-----	0-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3: Xeric Torriorthents--	0-3	Silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-100	75-95	20-30	10-15
	3-60	Very fine sandy loam, silt loam	CL-ML, CL	A-4, A-6	0	0	95-100	90-100	80-100	50-95	20-30	5-15
4: Burbank-----	0-3	Loamy fine sand	SM	A-2	0	0	95-100	85-95	60-80	15-35	0-10	NP
	3-24	Loamy fine sand, gravelly loamy sand, loamy sand	SM	A-2	0	0	85-95	70-90	60-80	15-35	0-10	NP
	24-27	Very gravelly loamy sand, very gravelly loamy fine sand	GM, GP-GM, SM, SP-SM	A-1	0	5-20	50-75	30-45	20-35	5-15	0-10	NP
	27-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand	GM, GP, GP-GM	A-1	0	15-20	35-55	10-50	5-30	0-20	0-10	NP
5: Burbank-----	0-3	Loamy fine sand	SM	A-2	0	0	95-100	85-95	60-80	15-35	0-10	NP
	3-24	Loamy fine sand, gravelly loamy sand, loamy sand	SM	A-2	0	0	85-95	70-90	60-80	15-35	0-10	NP
	24-27	Very gravelly loamy sand, very gravelly loamy fine sand	GM, GP-GM, SM, SP-SM	A-1	0	5-20	50-75	30-45	20-35	5-15	0-10	NP
	27-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand	GM, GP, GP-GM	A-1	0	15-20	35-55	10-50	5-30	0-20	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
6: Burbank-----	0-5	Gravelly loamy fine sand	SM	A-2	0	0	75-85	65-75	55-65	10-20	0-10	NP
	5-18	Loamy fine sand, gravelly loamy sand, loamy sand	SM	A-2	0	0	85-95	70-90	60-80	15-35	0-10	NP
	18-38	Very gravelly loamy sand, very gravelly loamy fine sand	GM, GP-GM, SM, SP-SM	A-1	0	5-20	50-75	30-45	20-35	5-15	0-10	NP
	38-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand	GM, GP, GP-GM	A-1	0	15-20	35-55	10-50	5-30	0-20	0-10	NP
7: Burke-----	0-8	Very fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	45-55	20-30	NP-5
	8-26	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	95-100	80-95	20-30	NP-5
	26-36	Cemented material			---	---	---	---	---	---	---	---
	36-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
8: Burke-----	0-8	Very fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	45-55	20-30	NP-5
	8-26	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	95-100	80-95	20-30	NP-5
	26-36	Cemented material			---	---	---	---	---	---	---	---
	36-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
9: Burke-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	75-95	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	95-100	80-95	20-30	NP-5
	22-32	Cemented material			---	---	---	---	---	---	---	---
	32-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
10: Chedehap-----	0-4	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	0-10	NP
	4-18	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	0-10	NP
	18-31	Sandy loam, fine sandy loam, loamy fine sand	SM	A-2, A-4	0	0	100	95-100	60-80	30-50	0-10	NP
	31-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
11: Chedehap-----	0-4	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	0-10	NP
	4-18	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	0-10	NP
	18-31	Sandy loam, fine sandy loam, loamy fine sand	SM	A-2, A-4	0	0	100	95-100	60-80	30-50	0-10	NP
	31-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
12: Chedehap-----	0-4	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	0-10	NP
	4-18	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	0-10	NP
	18-31	Sandy loam, fine sandy loam, loamy fine sand	SM	A-2, A-4	0	0	100	95-100	60-80	30-50	0-10	NP
	31-60	Coarse sand, loamy coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
13: Cleman-----	0-11	Fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	75-85	30-50	0-10	NP
	11-28	Very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	90-100	70-85	40-70	0-10	NP
	28-60	Stratified sand to silt loam	ML, SM	A-2, A-4	0	0	90-100	75-100	50-70	20-60	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
14: Eltopia-----	0-4	Very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	40-50	15-20	NP-5
	4-13	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	15-20	NP-5
	13-25	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	15-20	NP-5
	25-35	Cemented gravelly fine sandy loam, cemented very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-15	35-85	25-70	20-60	10-50	15-20	NP-5
	35-60	Extremely gravelly very fine sandy loam, extremely gravelly loamy sand, extremely gravelly fine sandy loam	GM, GP, GP-GM	A-1	0	0-30	25-40	15-30	5-25	0-20	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
15: Eltopia-----	0-4	Very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	40-50	15-20	NP-5
	4-13	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	15-20	NP-5
	13-25	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	15-20	NP-5
	25-35	Cemented gravelly fine sandy loam, cemented very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-15	35-85	25-70	20-60	10-50	15-20	NP-5
	35-60	Extremely gravelly very fine sandy loam, extremely gravelly loamy sand, extremely gravelly fine sandy loam	GM, GP, GP-GM	A-1	0	0-30	25-40	15-30	5-25	0-20	0-10	NP
16: Ephrata-----	0-6	Sandy loam	SM	A-2, A-4	0	0	85-100	75-95	40-80	25-50	15-25	NP-5
	6-28	Gravelly sandy loam, gravelly fine sandy loam, fine sandy loam	GM, SM	A-2, A-4	0	0-5	60-95	55-90	40-60	30-50	0-10	NP
	28-60	Very cobbly coarse sand, extremely gravelly coarse sand, very gravelly sand	GP	A-1	0	20-40	30-50	15-45	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
17: Esquatzel-----	0-15	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	20-30	NP-5
	15-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	85-100	65-95	20-30	NP-5
18: Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
19: Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
20: Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
21: Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
22: Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
23: Finley-----	0-6	Gravelly sandy loam	SM	A-1, A-2, A-4	0	0	65-80	50-75	35-65	20-45	15-25	NP-5
	6-17	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	60-90	35-65	15-25	NP-5
	17-32	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0	35-60	20-45	15-45	10-35	15-25	NP-5
	32-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
24: Finley-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	90-100	85-95	70-90	35-65	15-25	NP-5
	4-13	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	60-90	35-65	15-25	NP-5
	13-27	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0	35-60	20-45	15-45	10-35	15-25	NP-5
	27-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP
25: Finley-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	90-100	85-95	70-90	35-65	15-25	NP-5
	4-13	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	60-90	35-65	15-25	NP-5
	13-27	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0	35-60	20-45	15-45	10-35	15-25	NP-5
	27-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
26: Finley-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	90-100	85-95	70-90	35-65	15-25	NP-5
	4-13	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	60-90	35-65	15-25	NP-5
	13-27	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0	35-60	20-45	15-45	10-35	15-25	NP-5
	27-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP
Burbank-----	0-3	Loamy fine sand	SM	A-2	0	0-5	95-100	85-95	60-80	15-35	0-10	NP
	3-24	Loamy fine sand, gravelly loamy sand, loamy sand	SM	A-2	0	0-5	85-95	70-90	60-80	15-35	0-10	NP
	24-27	Very gravelly loamy sand, very gravelly loamy fine sand	GM, GP-GM, SM, SP-SM	A-1	0	5-20	50-75	30-45	20-35	5-15	0-10	NP
	27-60	Extremely gravelly sand, very cobbly coarse sand, extremely gravelly loamy sand	GM, GP, GP-GM	A-1	0	15-20	35-55	10-50	5-30	0-20	0-10	NP
Starbuck-----	0-9	Silt loam	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	9-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			0	0	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
27: Finley-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	90-100	85-95	70-90	35-65	15-25	NP-5
	4-13	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0	85-100	80-95	60-90	35-65	15-25	NP-5
	13-27	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0	35-60	20-45	15-45	10-35	15-25	NP-5
	27-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP
Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0-5	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0-5	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
28: Halaquepts-----	0-8	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-90	15-25	NP-5
	8-20	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-90	15-25	NP-5
	20-34	Silt loam, loam	ML	A-4	0	0	95-100	95-100	50-100	50-90	15-25	NP-5
	34-60	Silt loam, loam, sandy loam	ML, SM	A-2, A-4	0	0	95-100	95-100	50-100	20-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
29: Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5
30: Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5
31: Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
32: Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-33	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	33-45	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	45-50	Extremely cobblely very fine sandy loam	SM, GM	A-4, A-2	0-5	45-75	60-75	50-70	40-65	25-45	15-25	NP-5
	50-60	Extremely cobblely fine sandy loam, extremely cobblely loamy sand	SM, GM	A-2	0-5	45-75	60-75	50-70	35-60	20-35	15-25	NP-5
33: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
34: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
35: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
36: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
37: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
38: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
39:												
Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
40:												
Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5
Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
41:												
Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
41: Stratford-----	0-9	Very fine sandy loam	SM	A-4	0	0	95-100	85-95	80-90	35-50	15-20	NP-5
	9-19	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	19-31	Very fine sandy loam	SM, ML	A-4	0	0	95-100	85-95	80-90	35-80	15-20	NP-5
	31-35	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-1	15-40	30-50	10-35	5-15	0-5	0-10	NP
42: Kahlotus-----	0-10	Very fine sandy loam	ML	A-4	0	0	100	100	90-100	70-80	15-20	NP-5
	10-37	Silt loam, very fine sandy loam	ML	A-4	0	0	100	90-100	85-95	75-90	15-25	NP-5
	37-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	85-100	85-95	70-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
42: Stratford-----	0-9	Very fine sandy loam	SM	A-4	0	0	95-100	85-95	80-90	35-50	15-20	NP-5
	9-19	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	19-31	Very fine sandy loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-20	NP-5
	31-35	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-1	15-40	30-50	10-35	5-15	0-5	0-10	NP
43: Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
44: Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
45: Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
46: Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
47: Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
48: Kiona-----	0-19	Cobbly very fine sandy loam	ML	A-4	0-10	5-15	90-95	70-80	60-75	50-65	20-30	NP-5
	19-60	Extremely cobbly loam, very cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-10	25-45	45-70	40-60	35-50	15-45	15-25	NP-5
Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Starbuck-----	0-9	Silt loam	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	9-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
49: Kiona-----	0-19	Cobbly very fine sandy loam	ML	A-4	0-10	5-15	90-95	70-80	60-75	50-65	20-30	NP-5
	19-60	Extremely cobbly loam, very cobbly silt loam, very cobbly sandy loam	GM	A-1, A-2, A-4	0-10	25-45	45-70	40-60	35-50	15-45	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
52: Licksillet-----	0-6	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75	50-65	25-35	5-10
	6-13	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC, GM	A-2, A-6, A-7	0-10	5-50	40-65	30-50	25-50	20-40	35-45	10-20
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Bakeoven-----	0-3	Very cobbly silt loam	GM	A-2, A-4	10-20	25-40	50-70	40-65	35-55	30-50	25-35	NP-10
	3-8	Very cobbly silt loam, very gravelly loam, very cobbly loam	GC, GM	A-4, A-6	5-15	15-40	50-65	45-60	40-55	35-50	30-40	5-15
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
53: Magallon-----	0-7	Sandy loam	SM	A-2, A-4	0	0	90-100	80-90	60-70	30-40	15-25	NP-5
	7-15	Sandy loam, fine sandy loam, very fine sandy loam	SM	A-2, A-4	0	0	90-100	80-90	55-80	30-50	15-25	NP-5
	15-60	Coarse sand, loamy sand, fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-5	90-100	80-90	30-60	0-15	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
53: Stratford-----	0-9	Very fine sandy loam	SM	A-4	0	0	95-100	85-95	80-90	35-50	15-20	NP-5
	9-19	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	19-31	Very fine sandy loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-20	NP-5
	31-35	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	35-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0-1	15-40	30-50	10-35	5-15	0-5	0-10	NP
Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
54: Magallon-----	0-7	Sandy loam	SM	A-2, A-4	0	0	90-100	80-90	60-70	30-40	15-25	NP-5
	7-15	Sandy loam, fine sandy loam, very fine sandy loam	SM	A-2, A-4	0	0	90-100	80-90	55-80	30-50	15-25	NP-5
	15-60	Coarse sand, loamy sand, fine sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-5	90-100	80-90	30-60	0-15	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
54: Winchester-----	0-15	Loamy coarse sand	SM	A-1, A-2	0	0-5	95-100	85-100	30-50	15-30	0-10	NP
	15-60	Coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0	0-5	95-100	85-100	30-55	0-10	0-10	NP
Farrell-----	0-7	Loam	ML	A-4	0	0	100	100	80-90	50-60	15-25	NP-5
	7-41	Silt loam, loam, sandy loam	ML	A-4	0	0	100	100	75-85	55-75	15-25	NP-5
	41-48	Sandy loam, coarse sandy loam, loamy coarse sand	ML, SM	A-2, A-4	0	0	95-100	95-100	50-95	25-65	15-25	NP-5
	48-60	Sand, coarse sand, loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	30-55	5-30	0-10	NP
55: Malaga-----	0-6	Cobbly sandy loam	ML, SM	A-4	0-10	15-25	85-95	80-85	65-80	35-55	20-30	NP-5
	6-11	Gravelly sandy loam, gravelly fine sandy loam, gravelly loam	SM	A-2, A-4	0	0-10	75-85	55-75	45-60	25-50	20-30	NP-5
	11-18	Very gravelly sandy loam, very gravelly fine sandy loam, extremely gravelly loam	GM	A-1, A-2	0	0-10	30-60	20-55	15-40	10-30	20-30	NP-5
	18-60	Extremely gravelly coarse sand, very cobbly sand, extremely gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1	5-15	0-35	30-60	20-55	15-30	0-10	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
56:												
Nansene-----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
	22-54	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
57:												
Neppel-----	0-4	Fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	50-60	25-30	NP-5
	4-22	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	22-28	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	28-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
58:												
Neppel-----	0-4	Fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	50-60	25-30	NP-5
	4-22	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	22-28	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	28-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
59: Neppel-----	0-4	Fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	50-60	25-30	NP-5
	4-22	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	22-28	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	28-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
60: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
61: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
62: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
63: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
64: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
65: Neppel-----	0-7	Very fine sandy loam	ML	A-4	0	0	90-100	85-100	80-90	60-75	25-30	NP-5
	7-30	Loam, very fine sandy loam, fine sandy loam	ML	A-4	0	0	90-100	85-95	70-80	50-60	25-30	NP-5
	30-37	Gravelly fine sandy loam, gravelly very fine sandy loam	GM, SM	A-2	0	0-10	60-80	55-75	40-50	25-35	15-25	NP
	37-60	Extremely gravelly sand, extremely gravelly coarse sand	GP	A-1	0-5	0-25	10-30	5-25	5-15	0-5	0-10	NP
Finley-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0-5	90-100	85-95	70-90	35-65	15-25	NP-5
	4-13	Fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	60-90	35-65	15-25	NP-5
	13-27	Very gravelly very fine sandy loam, very gravelly sandy loam, extremely gravelly sandy loam	GM	A-1, A-2	0-5	0-10	35-60	20-45	15-45	10-35	15-25	NP-5
	27-60	Extremely gravelly sand, extremely gravelly coarse sand	GP, GP-GM	A-1	0-10	15-45	20-40	10-25	5-20	0-10	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
66: Novark-----	0-5	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	70-85	15-25	NP-5
	5-17	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	90-100	75-85	15-25	NP-5
	17-21	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	90-100	85-95	75-85	15-25	NP-5
	21-60	Fine sand, sand, coarse sand	SM, SP-SM	A-2, A-3	0	0	95-100	90-100	50-70	5-15	0-10	NP
67: Ottmar-----	0-7	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	7-17	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	20-25	5-10
	17-34	Silt loam	CL	A-6	0	0	100	100	95-100	75-95	25-35	10-15
	34-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	48-60	Weathered bedrock			---	---	---	---	---	---	---	---
68: Ottmar-----	0-7	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	7-17	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	20-25	5-10
	17-34	Silt loam	CL	A-6	0	0	100	100	95-100	75-95	25-35	10-15
	34-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	48-60	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
69: Ottmar-----	0-7	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	7-17	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	20-25	5-10
	17-34	Silt loam	CL	A-6	0	0	100	100	95-100	75-95	25-35	10-15
	34-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	48-60	Weathered bedrock			---	---	---	---	---	---	---	---
70: Ottmar-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	4-16	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	85-100	70-95	35-40	15-20
	16-46	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
	46-60	Stratified silt loam to silty clay loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
71: Ottmar-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	4-16	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	85-100	70-95	35-40	15-20
	16-46	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
	46-60	Stratified silt loam to silty clay loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
72: Ottmar-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	4-16	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	85-100	70-95	35-40	15-20
	16-46	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
	46-60	Stratified silt loam to silty clay loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
73: Ottmar-----	0-10	Clay loam	CL	A-6	0	0	90-100	80-100	70-100	55-80	35-40	15-20
	10-47	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	85-100	70-95	35-40	15-20
	47-60	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20
74: Ottmar-----	0-10	Clay loam	CL	A-6	0	0	90-100	80-100	70-100	55-80	35-40	15-20
	10-47	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	85-100	70-95	35-40	15-20
	47-60	Silty clay loam, clay loam, silt loam	CL	A-6	0	0	100	95-100	95-100	80-95	35-40	15-20

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
75:												
Ottmar-----	0-7	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	20-25	5-10
	7-17	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	20-25	5-10
	17-34	Silt loam	CL	A-6	0	0	100	100	95-100	75-95	25-35	10-15
	34-48	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-20
	48-60	Weathered bedrock			---	---	---	---	---	---	---	---
Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
76:												
Pits-----	0-60				---	---	---	---	---	---	---	---
77:												
Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
78: Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
79: Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
80: Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
81: Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
82: Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
83: Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Starbuck-----	0-9	Silt loam	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	9-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop---	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
84: Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
84: Starbuck-----	0-10	Fine sandy loam	ML	A-4	0	0-15	100	85-100	65-90	50-70	15-25	NP-5
	10-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
85: Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
86: Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
87: Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
88: Quincy-----	0-9	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	9-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
89: Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
90: Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
91: Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
92: Quincy-----	0-3	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	10-30	0-10	NP
	3-52	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	20-30	0-10	NP
	52-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-2, A-4	0	0	95-100	95-100	75-95	25-70	20-30	NP-5
93: Quincy-----	0-3	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	10-30	0-10	NP
	3-52	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	20-30	0-10	NP
	52-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-2, A-4	0	0	95-100	95-100	75-95	25-70	20-30	NP-5
94: Quincy-----	0-3	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	10-30	0-10	NP
	3-52	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	20-30	0-10	NP
	52-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-2, A-4	0	0	95-100	95-100	75-95	25-70	20-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
95: Quincy, cemented substratum-----	0-4	Loamy fine sand	SM	A-2	0	0	95-100	95-100	80-95	15-30	0-10	NP
	4-45	Fine sand, loamy fine sand	SM	A-2	0	0	95-100	95-100	80-100	10-30	0-10	NP
	45-55	Cemented material			---	---	---	---	---	---	---	---
	55-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
Quincy, very gravelly substratum-----	0-7	Loamy fine sand	SM	A-2	0	0	100	95-100	75-90	15-35	0-10	NP
	7-45	Loamy fine sand, fine sand	SM	A-2	0	0	85-100	75-95	70-85	15-35	0-10	NP
	45-60	Very gravelly fine sand, very gravelly loamy fine sand, very gravelly sand	GM, GP, GP-GM	A-1	0	0-15	30-55	25-50	10-45	0-15	0-10	NP
96: Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
Dune land-----	0-60	Fine sand	SM, SP, SP-SM	A-2, A-3	0	0	100	100	60-80	0-25	0-10	NP
97: Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
97: Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5
98: Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5
99: Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
99:												
Hezel-----	0-9	Fine sand	SM	A-2	0	0	100	100	50-85	10-30	0-10	NP
	9-28	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	28-60	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
100:												
Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
Hezel-----	0-7	Loamy fine sand	SM	A-2	0	0	100	100	80-100	15-35	0-10	NP
	7-18	Loamy fine sand, loamy sand, fine sand	SM	A-2	0	0	100	100	50-75	15-35	0-10	NP
	18-27	Fine sandy loam, very fine sandy loam, silt loam	ML	A-4	0	0	100	100	70-95	50-80	15-25	NP-5
	27-60	Stratified fine sandy loam to silt loam	ML	A-4	0	0	100	100	80-100	50-80	15-25	NP-5
Warden-----	0-6	Fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-90	35-60	15-25	NP-5
	6-22	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	22-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
101:												
Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
101:												
Quinton-----	0-7	Loamy fine sand	SM	A-2	0	0	95-100	95-100	70-80	25-35	0-10	NP
	7-25	Loamy fine sand, fine sand	SM	A-2	0	0	95-100	95-100	70-80	15-35	0-10	NP
	25-35	Unweathered bedrock			0	0	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
102:												
Quincy-----	0-4	Loamy fine sand	SM	A-2	0	0	100	100	75-100	15-30	0-10	NP
	4-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
Timmerman-----	0-5	Fine sandy loam	SM	A-2	0	0	100	100	70-80	25-35	15-20	NP-5
	5-19	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	19-60	Loamy coarse sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
103:												
Quincy-----	0-11	Fine sand	SM, SP-SM	A-2	0	0	100	100	75-90	10-20	0-10	NP
	11-60	Loamy fine sand, fine sand	SM, SP-SM	A-2	0	0	100	100	75-100	10-30	0-10	NP
Wanser-----	0-4	Fine sand	SM	A-2	0	0	100	100	75-85	10-30	0-10	NP
	4-60	Sand, fine sand, loamy fine sand	SM	A-2	0	0	100	100	70-80	15-35	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
104:												
Rinquin-----	0-7	Loamy fine sand	SM	A-1, A-2	0	0	95-100	90-100	40-85	15-30	0-10	NP
	7-21	Loamy fine sand, fine sand	SM	A-1, A-2	0	0	95-100	90-100	40-75	10-30	0-10	NP
	21-26	Loamy fine sand, fine sand	SM	A-1, A-2	0	0	95-100	90-100	40-75	10-30	0-10	NP
	26-36	Weathered bedrock			---	---	---	---	---	---	---	---
105:												
Ritzcal-----	0-4	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	4-28	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	28-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
106:												
Ritzcal-----	0-4	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	4-28	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	28-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
107:												
Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
108:												
Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
109: Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
110: Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
111: Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
112: Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
113: Ritzville-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	10-34	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	34-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	44-60	Silt loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	50-95	40-85	15-25	NP-10
114: Ritzville-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	10-34	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	34-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	44-60	Silt loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	50-95	40-85	15-25	NP-10

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
115: Ritzville-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	10-34	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	34-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	44-60	Silt loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	50-95	40-85	15-25	NP-10
116: Ritzville-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	10-34	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	34-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	44-60	Silt loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	50-95	40-85	15-25	NP-10
117: Ritzville-----	0-10	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	10-34	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	34-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	95-100	70-90	15-25	NP-10
	44-60	Silt loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	90-100	85-100	50-95	40-85	15-25	NP-10
118: Ritzville-----	0-12	Silt loam	ML	A-4	0	0	100	95-100	95-100	70-90	15-25	NP-5
	12-41	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	41-60	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	95-100	75-90	15-25	NP-5
Nansene-----	0-22	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
	22-54	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
	54-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-90	20-25	NP-5
119: Riverwash-----	0-60	Stratified gravel to sand			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
120: Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
121: Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
122: Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
123:												
Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Licksillet----	0-6	Cobbly silt loam	CL, CL-ML, ML	A-4	0-5	5-30	70-95	60-80	55-75	50-65	25-35	5-10
	6-13	Very gravelly clay loam, very gravelly loam, very cobbly loam	GC, GM	A-2, A-6, A-7	0-10	5-50	40-65	30-50	25-50	20-40	35-45	10-20
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	---	---	---	---	---	---	---	---	---	---	---	---
124:												
Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
125: Rolloff-----	0-4	Silt loam	ML	A-4	0	0	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land----	0-60	Fragmental material			---	---	---	---	---	---	---	---
126: Royal-----	0-6	Loamy fine sand	SM	A-2, A-4	0	0	95-100	95-100	80-90	30-40	0-10	NP
	6-19	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	19-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5
127: Royal-----	0-6	Loamy fine sand	SM	A-2, A-4	0	0	95-100	95-100	80-90	30-40	0-10	NP
	6-19	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	19-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
128: Royal-----	0-5	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	15-20	NP-5
	5-15	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	15-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5
129: Royal-----	0-5	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	15-20	NP-5
	5-15	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	15-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5
130: Royal-----	0-5	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	15-20	NP-5
	5-15	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	15-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5
131: Royal-----	0-5	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-95	45-60	15-20	NP-5
	5-24	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	24-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
132: Royal-----	0-5	Fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	15-20	NP-5
	5-15	Fine sandy loam, very fine sandy loam	SM	A-4	0	0	95-100	95-100	80-95	35-50	20-30	NP-5
	15-60	Stratified fine sand to very fine sandy loam	SM	A-2, A-4	0	0	95-100	95-100	80-95	30-45	20-30	NP-5
Timmerman-----	0-5	Fine sandy loam	SM	A-2	0	0	100	100	70-80	25-35	15-20	NP-5
	5-19	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	19-60	Loamy coarse sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
133: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5
134: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
135: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5
136: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5
137: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
138: Sagehill-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-95	45-60	20-25	NP-5
	4-27	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-95	45-60	20-25	NP-5
	27-45	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-80	20-25	NP-5
	45-55	Cemented material			---	---	---	---	---	---	---	---
	55-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
139: Sagehill-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-95	45-60	20-25	NP-5
	4-27	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-95	45-60	20-25	NP-5
	27-45	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-80	20-25	NP-5
	45-55	Cemented material			---	---	---	---	---	---	---	---
	55-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
140: Sagehill-----	0-10	Very fine sandy loam	ML, SM	A-4	0	0	100	90-100	80-95	40-55	20-25	NP-5
	10-21	Very fine sandy loam	SM	A-4	0	0	100	90-100	80-95	40-50	20-25	NP-5
	21-47	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	95-100	90-100	40-70	20-25	NP-5
	47-60	Gravelly coarse sand, very gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0	0-20	45-75	35-65	15-35	0-10	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
141: Sagehill-----	0-10	Very fine sandy loam	ML, SM	A-4	0	0	100	90-100	80-95	40-55	20-25	NP-5
	10-21	Very fine sandy loam	SM	A-4	0	0	100	90-100	80-95	40-50	20-25	NP-5
	21-47	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	95-100	90-100	40-70	20-25	NP-5
	47-60	Gravelly coarse sand, very gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0	0-20	45-75	35-65	15-35	0-10	0-10	NP
142: Sagehill-----	0-10	Very fine sandy loam	ML, SM	A-4	0	0	100	90-100	80-95	40-55	20-25	NP-5
	10-21	Very fine sandy loam	SM	A-4	0	0	100	90-100	80-95	40-50	20-25	NP-5
	21-47	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	95-100	90-100	40-70	20-25	NP-5
	47-60	Gravelly coarse sand, very gravelly coarse sand	GP, GP-GM, SP, SP-SM	A-1	0	0-20	45-75	35-65	15-35	0-10	0-10	NP
Kennewick, gravelly substratum----	0-20	Very fine sandy loam	SM	A-4	0	0	100	100	85-90	35-45	15-25	NP-5
	20-52	Silt loam, very fine sandy loam	ML, SM	A-4	0	0	100	95-100	85-95	40-80	15-25	NP-5
	52-60	Very gravelly sand, extremely gravelly coarse sand	GP	A-1	0	10-30	30-50	10-30	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
143: Sagehill-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	90-95	40-60	20-25	NP-5
	6-25	Very fine sandy loam, fine sandy loam, loamy very fine sand	ML, SM	A-4	0	0	95-100	95-100	80-95	40-70	20-25	NP-5
	25-60	Silt loam, very fine sandy loam, fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	80-100	45-75	20-25	NP-5
Kennewick-----	0-8	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	8-60	Silt loam, very fine sandy loam	CL-ML, ML	A-4	0	0	100	100	95-100	75-95	20-30	NP-10
Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
144: Sagemoor-----	0-4	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	65-80	20-25	NP-5
	4-9	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	9-18	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	18-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
145: Sagemoor-----	0-4	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	65-80	20-25	NP-5
	4-9	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	9-18	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	18-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
146: Sagemoor-----	0-4	Very fine sandy loam	ML	A-4	0	0	100	100	95-100	65-80	20-25	NP-5
	4-9	Silt loam	ML	A-4	0	0	100	100	95-100	75-95	20-25	NP-5
	9-18	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	18-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
147: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
148: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
149: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
150: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
151: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
152: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
153: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
154: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
155: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
156: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
157: Shano-----	0-6	Silt loam	ML	A-4	0	0	100	100	95-100	75-85	15-25	NP-5
	6-42	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
	42-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	15-25	NP-5
158: Shano-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100	70-90	10-20	NP-5
	13-45	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	10-20	NP-5
	45-50	Very fine sandy loam	SM	A-4	0	0	100	100	90-100	35-50	10-20	NP-5
	50-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	10-20	NP-5
159: Shano-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100	70-90	10-20	NP-5
	13-45	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	10-20	NP-5
	45-50	Very fine sandy loam	SM	A-4	0	0	100	100	90-100	35-50	10-20	NP-5
	50-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	10-20	NP-5
160: Shano-----	0-13	Silt loam	ML	A-4	0	0	100	100	95-100	70-90	10-20	NP-5
	13-45	Silt loam	ML	A-4	0	0	100	100	95-100	75-90	10-20	NP-5
	45-50	Very fine sandy loam	SM	A-4	0	0	100	100	90-100	35-50	10-20	NP-5
	50-60	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	10-20	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
166: Starbuck-----	0-9	Silt loam	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	9-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
167: Starbuck-----	0-10	Fine sandy loam	ML	A-4	0	0-15	100	85-100	65-90	50-70	15-25	NP-5
	10-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
168: Starbuck-----	0-4	Very fine sandy loam	ML, SM	A-4	0	0-5	100	90-100	80-90	45-55	15-25	NP-5
	4-14	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
169:												
Prosser-----	0-4	Silt loam	ML	A-4	0	0	100	95-100	85-95	50-90	20-30	NP-5
	4-22	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	22-33	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	33-43	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
170:												
Starbuck-----	0-10	Fine sandy loam	ML	A-4	0	0-15	100	85-100	65-90	50-70	15-25	NP-5
	10-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Prosser-----	0-4	Fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-5	95-100	90-100	80-90	50-80	20-30	NP-5
	15-27	Silt loam, very fine sandy loam	ML, SM	A-4	0	0-5	85-100	80-95	70-85	40-75	20-30	NP-5
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
171:												
Starbuck-----	0-9	Silt loam	ML	A-4	0	0-5	100	90-100	80-90	70-80	20-30	NP-5
	9-17	Silt loam, fine sandy loam, very fine sandy loam	ML, SM	A-4	0	0-15	80-100	75-95	60-80	35-75	20-30	NP-5
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
171:												
Rolloff-----	0-4	Silt loam	ML	A-4	0-1	0-5	95-100	90-95	80-90	70-80	20-30	NP-5
	4-15	Silt loam, very fine sandy loam	ML	A-4	0	0-10	80-90	75-85	60-70	50-60	20-30	NP-5
	15-26	Silt loam, very fine sandy loam, gravelly silt loam	ML	A-4	0	0-10	70-90	60-85	55-70	50-60	20-30	NP-5
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
172:												
Stratford-----	0-8	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	8-20	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	20-28	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	28-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0	15-40	30-50	10-35	5-15	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
173: Stratford-----	0-8	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	8-20	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	20-28	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	28-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0	15-40	30-50	10-35	5-15	0-5	0-10	NP
174: Stratford-----	0-8	Silt loam	ML	A-4	0	0	95-100	85-95	80-90	70-80	15-25	NP-5
	8-23	Very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	85-95	80-90	35-80	15-25	NP-5
	23-28	Very gravelly silt loam, gravelly fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1, A-2, A-4	0	0-15	30-80	25-75	15-70	15-55	15-25	NP-5
	28-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0	15-40	30-50	10-35	5-15	0-5	0-10	NP
175: Stratford-----	0-12	Cobbly silt loam	ML	A-4	0-5	15-40	100	75-85	70-80	60-75	20-30	NP-5
	12-28	Gravelly loam, gravelly silt loam, loam	GM, ML, SM	A-4	0	0-10	60-90	60-90	50-70	40-60	20-30	NP-5
	28-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0	0-10	30-40	10-35	5-10	0-5	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
176: Stratford-----	0-12	Very stony silt loam	ML, SM	A-4	20-50	5-15	70-90	60-70	50-60	35-60	20-30	NP-5
	12-20	Gravelly loam, gravelly silt loam, loam	GM, ML, SM	A-4	0	0-10	60-90	60-90	50-70	40-60	20-30	NP-5
	20-60	Very gravelly coarse sand, extremely gravelly coarse sand	GP	A-1	0	0-10	30-40	10-35	5-10	0-5	0-10	NP
177: Tauncal-----	0-13	Very fine sandy loam	SM	A-4	0	0	100	95-100	85-95	35-45	15-20	NP-5
	13-36	Silt loam, very fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	80-100	45-90	15-20	NP-5
	36-46	Cemented material			---	---	---	---	---	---	---	---
	46-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
178: Tauncal-----	0-13	Very fine sandy loam	SM	A-4	0	0	100	95-100	85-95	35-45	15-20	NP-5
	13-36	Silt loam, very fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	80-100	45-90	15-20	NP-5
	36-46	Cemented material			---	---	---	---	---	---	---	---
	46-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
179: Tauncal-----	0-13	Very fine sandy loam	SM	A-4	0	0	100	95-100	85-95	35-45	15-20	NP-5
	13-36	Silt loam, very fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	80-100	45-90	15-20	NP-5
	36-46	Cemented material			---	---	---	---	---	---	---	---
	46-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
180: Tauncal-----	0-13	Very fine sandy loam	SM	A-4	0	0	100	95-100	85-95	35-45	15-20	NP-5
	13-36	Silt loam, very fine sandy loam	ML, SM	A-4	0	0	90-100	85-100	80-100	45-90	15-20	NP-5
	36-46	Cemented material			---	---	---	---	---	---	---	---
	46-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
181: Taunton-----	0-6	Very fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	80-90	30-45	15-20	NP-5
	6-25	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	25-38	Gravelly fine sandy loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	38-48	Cemented material			---	---	---	---	---	---	---	---
	48-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
182: Taunton-----	0-6	Very fine sandy loam	SM	A-2, A-4	0	0	95-100	90-100	80-90	30-45	15-20	NP-5
	6-25	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	95-100	90-100	80-95	40-70	15-25	NP-5
	25-38	Gravelly fine sandy loam, very fine sandy loam, very gravelly silt loam	GM, SM	A-1, A-2, A-4	0	0-10	50-90	35-85	30-65	20-50	15-25	NP-5
	38-48	Cemented material			---	---	---	---	---	---	---	---
	48-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
183: Timmerman-----	0-5	Fine sandy loam	SM	A-2	0	0	100	100	70-80	25-35	15-20	NP-5
	5-19	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	19-60	Loamy coarse sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
184: Timmerman-----	0-5	Fine sandy loam	SM	A-2	0	0	100	100	70-80	25-35	15-20	NP-5
	5-19	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	19-60	Loamy coarse sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
185: Timmerman-----	0-5	Fine sandy loam	SM	A-2	0	0	100	100	70-80	25-35	15-20	NP-5
	5-19	Sandy loam, coarse sandy loam, fine sandy loam	SM	A-4	0	0	100	95-100	70-80	40-50	15-20	NP-5
	19-60	Loamy coarse sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1	0	0-15	95-100	60-95	10-40	0-20	0-10	NP
186: Urban land-----	---	---	---	---	---	---	---	---	---	---	---	---
Torripsamments--	0-8	Loamy fine sand	SM	A-2	0	0	100	100	60-100	15-35	0-10	NP
	8-31	Loamy fine sand, fine sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0	100	90-100	45-80	5-30	0-10	NP
	31-60	Fine sand, loamy coarse sand, coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0	90-100	85-100	20-80	0-30	0-10	NP

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
187:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
188:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
189:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
190:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
191:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
192:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
193:												
Wacota-----	0-4	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-95	75-85	25-35	NP-5
	4-19	Ashy silt loam	ML	A-4	0	0	95-100	90-100	80-95	75-85	25-35	NP-5
	19-31	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	75-85	25-35	NP-5
	31-60	Silt loam	ML	A-4	0	0	95-100	90-100	80-95	75-85	25-35	NP-5
194:												
Wacota-----	0-8	Ashy silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	20-35	NP-5
	8-32	Ashy silt loam	ML	A-4	0	0	100	100	90-100	85-95	20-35	NP-5
	32-53	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
	53-60	Silt loam, very fine sandy loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	NP-5
Ritzcal-----	0-4	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	4-28	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5
	28-60	Silt loam	ML	A-4	0	0	95-100	95-100	90-100	85-100	20-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
195: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
196: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
197: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
198: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
199: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
200: Warden-----	0-6	Very fine sandy loam	ML, SM	A-4	0	0	95-100	95-100	85-95	40-65	15-25	NP-5
	6-19	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	19-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
201: Warden-----	0-6	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-80	25-30	NP-5
	6-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	24-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
202: Warden-----	0-6	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-80	25-30	NP-5
	6-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	24-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
203: Warden-----	0-6	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-80	25-30	NP-5
	6-24	Very fine sandy loam, silt loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	24-60	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
208:												
Warden-----	0-8	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-80	25-30	NP-5
	8-36	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	36-41	Silt loam, very fine sandy loam	ML	A-4	0	0	85-100	75-100	65-95	50-75	25-30	NP-5
	41-51	Cemented material			---	---	---	---	---	---	---	---
	51-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
209:												
Warden-----	0-8	Silt loam	ML	A-4	0	0	95-100	95-100	85-100	70-80	25-30	NP-5
	8-36	Silt loam, very fine sandy loam	ML	A-4	0	0	95-100	95-100	95-100	75-90	25-30	NP-5
	36-41	Silt loam, very fine sandy loam	ML	A-4	0	0	85-100	75-100	65-95	50-75	25-30	NP-5
	41-51	Cemented material			---	---	---	---	---	---	---	---
	51-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
210: Wiehl-----	0-5	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-65	15-20	NP-5
	5-16	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	16-23	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	23-33	Weathered bedrock			---	---	---	---	---	---	---	---
211: Wiehl-----	0-8	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-65	15-20	NP-5
	8-18	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	18-25	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
212: Wiehl-----	0-8	Fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	40-65	15-20	NP-5
	8-18	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	18-25	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
213: Wiehl-----	0-14	Very fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	45-75	15-20	NP-5
	14-29	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	29-36	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
214: Wiehl-----	0-14	Very fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	45-75	15-20	NP-5
	14-29	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	29-36	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
215: Wiehl-----	0-14	Very fine sandy loam	ML, SM	A-4	0	0	100	100	85-95	45-75	15-20	NP-5
	14-29	Fine sandy loam, very fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	80-95	40-65	15-25	NP-5
	29-36	Paragravelly very fine sandy loam, paragravelly fine sandy loam, paragravelly silt loam	ML, SM	A-4	0	0	100	90-100	75-95	35-65	15-25	NP-5
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---

Table 13.--Engineering Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
215: Schlomer-----	0-4	Silt loam	CL-ML, CL	A-4	0	0	100	100	95-100	75-85	15-20	5-10
	4-16	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	50-85	15-25	5-10
	16-22	Silt loam, very fine sandy loam	CL-ML, CL	A-4	0	0	100	100	95-100	60-85	15-25	5-10
	22-34	Silty clay loam, silty clay	CL	A-7	0	0	100	100	95-100	90-100	40-50	15-25
	34-44	Weathered bedrock			---	---	---	---	---	---	---	---
216: Willis-----	0-10	Silt loam	ML	A-4	0	0	100	100	95-100	85-95	15-20	NP-5
	10-18	Silt loam	ML	A-4	0	0	100	95-100	95-100	85-95	15-20	NP-5
	18-22	Silt loam	ML	A-4	0	0	95-100	95-100	95-100	80-90	15-20	NP-5
	22-32	Cemented material			---	---	---	---	---	---	---	---
	32-60	Stratified cemented material to very gravelly sandy loam			---	---	---	---	---	---	---	---
217: Winchester-----	0-15	Loamy coarse sand	SM	A-1, A-2	0	0-5	95-100	85-100	30-50	15-30	0-10	NP
	15-60	Coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0	0-5	95-100	85-100	30-55	0-10	0-10	NP
218: Winchester-----	0-15	Loamy coarse sand	SM	A-1, A-2	0	0-5	95-100	85-100	30-50	15-30	0-10	NP
	15-60	Coarse sand, sand	SP, SP-SM	A-1, A-2, A-3	0	0-5	95-100	85-100	30-55	0-10	0-10	NP
219: Xeric Torriorthents--	0-3	Silt loam	CL	A-4, A-6	0	0	95-100	90-100	85-100	75-95	20-30	10-15
	3-60	Very fine sandy loam, silt loam	CL-ML, CL	A-4	0	0	95-100	90-100	80-100	50-95	20-30	5-15

Table 14.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
1: Alderdale-----	0-3	0-5	1.25-1.45	6-20	0.03-0.05	0.0-2.9	0.5-1.0	.02	.20	2	5	56
	3-30	0-5	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.02	.24			
	30-35	0-5	1.35-1.55	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
	35-45	---	---	---	---	---	---	---	---			
2: Aguents-----	0-4	0-5	1.30-1.50	6-20	0.05-0.07	0.0-2.9	0.0-1.0	.17	.17	5	8	0
	4-20	0-5	1.40-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.24	.24			
	20-60	0-8	1.30-1.60	0.2-20	0.05-0.21	0.0-2.9	0.0-0.5	.43	.43			
Halaguepts-----	0-12	5-15	1.20-1.30	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-60	5-15	1.25-1.55	0.6-2	0.18-0.22	0.0-2.9	0.0-1.0	.55	.55			
3: Badland-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Xeric Torriorthents---	0-3	15-27	1.15-1.35	0.6-2	0.16-0.21	3.0-5.9	0.0-1.0	.55	.55	5	5	56
	3-60	8-27	1.20-1.40	0.6-2	0.16-0.18	3.0-5.9	0.0-0.5	.55	.55			
4: Burbank-----	0-3	0-5	1.50-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.28	.28	5	2	134
	3-24	0-5	1.50-1.65	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	24-27	0-4	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
	27-60	0-2	1.50-1.65	>20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
5: Burbank-----	0-3	0-5	1.50-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.28	.28	5	2	134
	3-24	0-5	1.50-1.65	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	24-27	0-4	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
	27-60	0-2	1.50-1.65	>20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
6: Burbank-----	0-5	0-5	1.50-1.65	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.15	.28	5	2	134
	5-18	0-5	1.50-1.65	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	18-38	0-4	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
	38-60	0-2	1.50-1.65	>20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
7: Burke-----	0-8	5-15	1.15-1.40	0.6-20	0.14-0.18	0.0-2.9	1.0-2.0	.64	.64	2	3	86
	8-26	5-15	1.30-1.60	0.6-2	0.19-0.21	0.0-2.9	0.0-1.0	.55	.55			
	26-36	---	1.60-1.80	<0.06	---	---	---	---	---			
	36-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
8: Burke-----	0-8	5-15	1.15-1.40	0.6-20	0.14-0.18	0.0-2.9	1.0-2.0	.64	.64	2	3	86
	8-26	5-15	1.30-1.60	0.6-2	0.19-0.21	0.0-2.9	0.0-1.0	.55	.55			
	26-36	---	1.60-1.80	<0.06	---	---	---	---	---			
	36-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
9: Burke-----	0-4	5-15	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55	2	5	56
	4-22	5-15	1.30-1.60	0.6-2	0.19-0.21	0.0-2.9	0.0-1.0	.55	.55			
	22-32	---	1.60-1.80	<0.06	---	---	---	---	---			
	32-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
10: Chedehap-----	0-4	2-5	1.20-1.40	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-18	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	18-31	0-5	1.35-1.60	2-6	0.11-0.14	0.0-2.9	0.0-0.5	.20	.20			
	31-60	0-5	1.40-1.60	>20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.15			
11: Chedehap-----	0-4	2-5	1.20-1.40	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-18	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	18-31	0-5	1.35-1.60	2-6	0.11-0.14	0.0-2.9	0.0-0.5	.20	.20			
	31-60	0-5	1.40-1.60	>20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.15			
12: Chedehap-----	0-4	2-5	1.20-1.40	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-18	3-8	1.35-1.55	2-6	0.12-0.16	0.0-2.9	0.5-1.0	.20	.20			
	18-31	0-5	1.35-1.60	2-6	0.11-0.14	0.0-2.9	0.0-0.5	.20	.20			
	31-60	0-5	1.40-1.60	>20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.15			
13: Cleman-----	0-11	5-10	1.20-1.40	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	11-28	5-10	1.30-1.50	2-6	0.13-0.15	0.0-2.9	0.0-1.0	.55	.55			
	28-60	2-10	1.30-1.60	2-6	0.10-0.13	0.0-2.9	0.0-1.0	.28	.37			
14: Eltopia-----	0-4	3-8	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	4-13	3-10	1.30-1.40	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.64	.64			
	13-25	3-10	1.30-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.64	.64			
	25-35	3-10	1.60-1.80	0.06-0.2	0.00-0.00	0.0-2.9	0.0-0.5	.20	.64			
	35-60	0-5	1.40-1.60	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.05	.32			
15: Eltopia-----	0-4	3-8	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	4-13	3-10	1.30-1.40	0.6-2	0.15-0.21	0.0-2.9	0.5-1.0	.64	.64			
	13-25	3-10	1.30-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.64	.64			
	25-35	3-10	1.60-1.80	0.06-0.2	0.00-0.00	0.0-2.9	0.0-0.5	.20	.64			
	35-60	0-5	1.40-1.60	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.05	.32			
16: Ephrata-----	0-6	4-8	1.20-1.40	2-6	0.13-0.16	0.0-2.9	0.5-1.0	.24	.24	3	3	86
	6-28	4-8	1.30-1.50	2-6	0.13-0.16	0.0-2.9	0.0-0.5	.20	.32			
	28-60	0-2	1.35-1.55	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.02	.15			
17: Esquatzel-----	0-15	2-6	1.10-1.30	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	15-60	5-15	1.20-1.40	0.6-2	0.19-0.23	0.0-2.9	0.0-1.0	.55	.55			
18: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
19: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
20: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
21: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
22: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
23: Finley-----	0-6	4-10	1.20-1.40	2-6	0.09-0.11	0.0-2.9	0.7-1.0	.20	.37	3	4	86
	6-17	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	17-32	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	32-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
24: Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
25: Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
26: Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
Burbank-----	0-3	0-5	1.50-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.28	.28	5	2	134
	3-24	0-5	1.50-1.65	6-20	0.06-0.11	0.0-2.9	0.0-0.5	.24	.24			
	24-27	0-4	1.50-1.65	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
	27-60	0-2	1.50-1.65	>20	0.01-0.03	0.0-2.9	0.0-0.5	.05	.24			
Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
27: Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
28: Halaquepts-----	0-8	8-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	4L	86
	8-20	8-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.55	.55			
	20-34	8-15	1.20-1.40	0.6-2	0.16-0.21	0.0-2.9	0.0-0.5	.55	.55			
	34-60	4-15	1.20-1.40	0.6-2	0.15-0.19	0.0-2.9	0.0-0.5	.55	.55			
29: Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
30: Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
31: Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
32: Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	4	2	134
	7-33	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	33-45	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	45-50	5-8	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.43			
	50-60	5-8	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.0-0.5	.15	.32			
33: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
34: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
35: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
36: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
37: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
38: Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
39:												
Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
40:												
Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
41:												
Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
Stratford-----	0-9	4-10	1.20-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49	3	3	86
	9-19	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	19-31	4-10	1.25-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49			
	31-35	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	35-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
42:												
Kahlotus-----	0-10	3-8	1.15-1.35	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	10-37	3-7	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-1.0	.55	.55			
	37-60	3-7	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.55	.55			
Stratford-----	0-9	4-10	1.20-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49	3	3	86
	9-19	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	19-31	4-10	1.25-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49			
	31-35	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	35-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
43:												
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
44:												
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
45:												
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
46:												
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
47:												
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
48:												
Kiona-----	0-19	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.43	5	4	86
	19-60	3-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
48:												
Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-22	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	22-33	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	33-43	---	---	---	---	---	---	---	---			
Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
49:												
Kiona-----	0-19	5-15	1.15-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.24	.43	5	4	86
	19-60	3-15	1.25-1.50	0.6-2	0.05-0.09	0.0-2.9	0.0-0.5	.15	.37			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
50:												
Koehler-----	0-4	0-5	1.40-1.60	6-20	0.07-0.11	0.0-2.9	0.5-1.0	.24	.24	2	1	250
	4-35	0-5	1.40-1.60	6-20	0.08-0.10	0.0-2.9	0.0-0.5	.28	.28			
	35-45	---	1.60-1.80	<0.06	---	---	---	---	---			
	45-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
51:												
Koehler-----	0-3	0-5	1.40-1.60	6-20	0.09-0.13	0.0-2.9	0.5-1.0	.28	.28	2	2	134
	3-20	0-5	1.40-1.60	6-20	0.08-0.10	0.0-2.9	0.0-0.5	.28	.28			
	20-33	0-5	1.45-1.75	6-20	0.02-0.06	0.0-2.9	0.0-0.5	.05	.28			
	33-43	---	1.60-1.80	<0.06	---	---	---	---	---			
	43-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
52:												
Licksillet-----	0-6	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.20	.37	1	7	38
	6-13	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.5-1.0	.20	.37			
	13-23	---	---	---	---	---	---	---	---			
Bakeoven-----	0-3	15-25	1.25-1.35	0.6-2	0.05-0.08	0.0-2.9	1.0-3.0	.10	.24	1	8	0
	3-8	18-27	1.30-1.40	0.6-2	0.05-0.08	0.0-2.9	0.5-2.0	.10	.32			
	8-18	---	---	---	---	---	---	---	---			
53:												
Magallon-----	0-7	4-13	1.20-1.30	2-6	0.11-0.13	0.0-2.9	1.0-3.0	.49	.49	2	3	86
	7-15	4-13	1.35-1.50	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			
	15-60	0-5	1.40-1.55	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
Stratford-----	0-9	4-10	1.20-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49	3	3	86
	9-19	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	19-31	4-10	1.25-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.49	.49			
	31-35	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	35-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
54:												
Magallon-----	0-7	4-13	1.20-1.30	2-6	0.11-0.13	0.0-2.9	1.0-3.0	.49	.49	2	3	86
	7-15	4-13	1.35-1.50	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.28	.28			
	15-60	0-5	1.40-1.55	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
Winchester-----	0-15	0-5	1.40-1.65	6-20	0.07-0.10	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	15-60	0-5	1.50-1.70	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.17	.17			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
54: Farrell-----	0-7	5-15	1.20-1.35	0.6-2	0.16-0.18	0.0-2.9	1.0-2.0	.49	.49	4	5	56
	7-41	5-15	1.30-1.45	0.6-2	0.12-0.18	0.0-2.9	0.0-1.0	.43	.43			
	41-48	5-15	1.40-1.55	2-20	0.06-0.12	0.0-2.9	0.0-1.0	.24	.24			
	48-60	0-5	1.45-1.60	>20	0.03-0.05	0.0-2.9	0.0-1.0	.10	.10			
55: Malaga-----	0-6	5-15	1.20-1.40	2-6	0.11-0.13	0.0-2.9	0.5-1.0	.17	.37	2	4	86
	6-11	5-15	1.30-1.50	2-6	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37			
	11-18	5-15	1.30-1.50	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.10	.43			
	18-60	0-5	1.30-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
56: Nansene-----	0-22	10-18	1.25-1.35	0.6-2	0.16-0.19	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	22-54	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	0.5-3.0	.55	.55			
	54-60	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
57: Neppel-----	0-4	5-12	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-22	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	22-28	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	28-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
58: Neppel-----	0-4	5-12	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-22	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	22-28	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	28-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
59: Neppel-----	0-4	5-12	1.20-1.40	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.43	.43	3	3	86
	4-22	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	22-28	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	28-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
60: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
61: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
62: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
63: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
64: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
65: Neppel-----	0-7	5-12	1.15-1.35	0.6-2	0.16-0.19	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	7-30	5-12	1.30-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-1.0	.43	.43			
	30-37	5-8	1.60-1.80	0.6-2	0.07-0.11	0.0-2.9	0.0-0.5	.24	.43			
	37-60	1-6	1.45-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.20			
Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
66: Novark-----	0-5	5-10	1.15-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-3.0	.55	.55	3	5	56
	5-17	5-10	1.30-1.50	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	17-21	5-10	1.30-1.50	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	21-60	0-5	1.45-1.65	>20	0.05-0.07	0.0-2.9	0.0-0.5	.10	.10			
67: Ottmar-----	0-7	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	4	5	56
	7-17	10-15	1.30-1.50	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	17-34	21-27	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-48	25-40	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	48-60	---	---	---	---	---	---	---	---			
68: Ottmar-----	0-7	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	4	5	56
	7-17	10-15	1.30-1.50	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	17-34	21-27	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-48	25-40	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	48-60	---	---	---	---	---	---	---	---			
69: Ottmar-----	0-7	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	4	5	56
	7-17	10-15	1.30-1.50	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	17-34	21-27	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-48	25-40	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	48-60	---	---	---	---	---	---	---	---			
70: Ottmar-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	4-16	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	16-46	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	46-60	20-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
71: Ottmar-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	4-16	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	16-46	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	46-60	20-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			
72: Ottmar-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	4-16	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	16-46	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	46-60	20-35	1.20-1.40	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.37	.37			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
73: Ottmar-----	0-10	27-35	1.15-1.35	0.2-0.6	0.16-0.19	3.0-5.9	1.0-2.0	.37	.37	5	6	48
	10-47	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	47-60	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
74: Ottmar-----	0-10	27-35	1.15-1.35	0.2-0.6	0.16-0.19	3.0-5.9	1.0-2.0	.37	.37	5	6	48
	10-47	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
	47-60	20-35	1.15-1.35	0.2-0.6	0.19-0.21	3.0-5.9	0.5-1.0	.37	.37			
75: Ottmar-----	0-7	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	4	5	56
	7-17	10-15	1.30-1.50	0.6-2	0.16-0.21	0.0-2.9	0.5-1.0	.64	.64			
	17-34	21-27	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.64	.64			
	34-48	25-40	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	48-60	---	---	---	---	---	---	---	---			
Schlomer-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	3	5	56
	4-16	10-15	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.64	.64			
	16-22	10-15	1.20-1.40	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.64	.64			
	22-34	27-45	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-44	---	---	---	---	---	---	---	---			
76: Pits-----	0-60	---	---	---	---	---	---	---	---	---	---	---
77: Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
78: Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
79: Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
80: Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-22	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	22-33	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	33-43	---	---	---	---	---	---	---	---			
81: Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-22	5-12	1.30-1.45	0.6-2	0.16-0.20							

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
83:												
Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-22	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	22-33	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	33-43	---	---	---	---	---	---	---	---			
Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
84:												
Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
Starbuck-----	0-10	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	10-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
85:												
Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
86:												
Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
87:												
Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
88:												
Quincy-----	0-9	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	9-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
89:												
Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
90:												
Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
91:												
Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
92:												
Quincy-----	0-3	0-7	1.25-1.45	6-20	0.08-0.11	0.0-2.9	1.0-2.0	.32	.32	4	2	134
	3-52	1-7	1.30-1.50	6-20	0.08-0.11	0.0-2.9	0.0-0.5	.32	.32			
	52-60	5-10	1.50-1.70	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
93:												
Quincy-----	0-3	0-7	1.25-1.45	6-20	0.08-0.11	0.0-2.9	1.0-2.0	.32	.32	4	2	134
	3-52	1-7	1.30-1.50	6-20	0.08-0.11	0.0-2.9	0.0-0.5	.32	.32			
	52-60	5-10	1.50-1.70	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
94: Quincy-----	0-3	0-7	1.25-1.45	6-20	0.08-0.11	0.0-2.9	1.0-2.0	.32	.32	4	2	134
	3-52	1-7	1.30-1.50	6-20	0.08-0.11	0.0-2.9	0.0-0.5	.32	.32			
	52-60	5-10	1.50-1.70	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
95: Quincy, cemented Substratum-----	0-4	1-5	1.30-1.50	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.32	.32	3	2	134
	4-45	1-7	1.40-1.60	6-20	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	45-55	---	1.60-1.80	<0.06	---	---	---	---	---			
	55-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
Quincy, very gravelly Substratum-----	0-7	0-5	1.30-1.45	6-20	0.09-0.10	0.0-2.9	0.8-1.0	.32	.32	4	2	134
	7-45	0-5	1.45-1.60	6-20	0.05-0.09	0.0-2.9	0.0-0.1	.28	.32			
	45-60	0-5	1.45-1.60	>20	0.04-0.08	0.0-2.9	0.0-0.1	.02	.32			
96: Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Dune land-----	0-60	0-1	1.40-1.60	6-20	0.03-0.05	0.0-2.9	0.0-0.1	.17	.17	5	1	250
97: Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
98: Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
99: Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Hezel-----	0-9	0-5	1.30-1.50	6-20	0.12-0.14	0.0-2.9	0.0-0.5	.17	.17	5	1	250
	9-28	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	28-60	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
100: Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Hezel-----	0-7	2-5	1.25-1.45	6-20	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32	5	2	134
	7-18	0-5	1.40-1.60	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.24	.24			
	18-27	5-8	1.30-1.50	0.6-2	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
	27-60	5-8	1.30-1.50	0.2-0.6	0.13-0.21	0.0-2.9	0.0-0.5	.43	.43			
Warden-----	0-6	5-10	1.25-1.35	0.6-2	0.13-0.15	0.0-2.9	1.0-3.0	.43	.43	5	3	86
	6-22	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	22-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
101:												
Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Quinton-----	0-7	0-5	1.40-1.70	6-20	0.08-0.09	0.0-2.9	0.0-0.8	.32	.32	2	2	134
	7-25	0-5	1.40-1.70	6-20	0.06-0.09	0.0-2.9	0.0-0.5	.17	.17			
	25-35	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
102:												
Quincy-----	0-4	1-6	1.50-1.65	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	4-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Timmerman-----	0-5	0-5	1.20-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	5-19	0-5	1.35-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.20	.20			
	19-60	0-5	1.40-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
103:												
Quincy-----	0-11	1-6	1.50-1.60	6-20	0.05-0.07	0.0-2.9	0.5-1.0	.17	.17	5	1	250
	11-60	1-7	1.50-1.65	6-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
Wanser-----	0-4	0-3	1.40-1.60	6-20	0.08-0.10	0.0-2.9	0.2-0.4	.20	.20	5	1	250
	4-60	0-3	1.40-1.60	6-20	0.06-0.09	0.0-2.9	0.0-0.1	.24	.24			
104:												
Rinquin-----	0-7	1-3	1.50-1.65	6-20	0.10-0.12	0.0-2.9	0.2-0.5	.32	.32	3	2	134
	7-21	1-3	1.50-1.70	6-20	0.09-0.11	0.0-2.9	0.0-0.5	.28	.28			
	21-26	1-3	1.50-1.70	6-20	0.09-0.11	0.0-2.9	0.0-0.5	.28	.28			
	26-36	---	1.70-2.00	---	---	---	---	---	---			
105:												
Ritzcal-----	0-4	10-18	1.10-1.30	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86
	4-28	10-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
	28-60	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
106:												
Ritzcal-----	0-4	10-18	1.10-1.30	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86
	4-28	10-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
	28-60	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
107:												
Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
108:												
Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
109: Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
110: Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
111: Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
112: Ritzville-----	0-12	5-10	1.10-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	12-41	5-10	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	41-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.55	.55			
113: Ritzville-----	0-10	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-34	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	5-10	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	44-60	5-10	1.20-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.49	.49			
114: Ritzville-----	0-10	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-34	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	5-10	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	44-60	5-10	1.20-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.49	.49			
115: Ritzville-----	0-10	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-34	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	5-10	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	44-60	5-10	1.20-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.49	.49			
116: Ritzville-----	0-10	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-34	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	5-10	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	44-60	5-10	1.20-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.49	.49			
117: Ritzville-----	0-10	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	10-34	5-10	1.00-1.50	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	5-10	1.20-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	44-60	5-10	1.20-1.50	0.6-2	0.15-0.21	0.0-2.9	0.0-0.5	.49	.49			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
120: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
121: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
122: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
123: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
Licksillet-----	0-6	15-25	1.25-1.35	0.6-2	0.08-0.14	0.0-2.9	1.0-2.0	.20	.37	1	7	38
	6-13	23-33	1.30-1.40	0.6-2	0.06-0.14	0.0-2.9	0.5-1.0	.20	.37			
	13-23	---	---	---	---	---	---	---	---			
Rock outcrop-----	---	---	---	---	---	---	---	---	---	---	---	---
124: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
125: Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---	---	---	---	---	---	---
126: Royal-----	0-6	2-8	1.35-1.45	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	6-19	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	19-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
127: Royal-----	0-6	2-8	1.35-1.45	6-20	0.09-0.11	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	6-19	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	19-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
128: Royal-----	0-5	5-10	1.30-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	5-15	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	15-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
129: Royal-----	0-5	5-10	1.30-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	5-15	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	15-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
130: Royal-----	0-5	5-10	1.30-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	5-15	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	15-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
131: Royal-----	0-5	5-10	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.5-1.0	.55	.55	5	3	86
	5-24	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	24-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
132: Royal-----	0-5	5-10	1.30-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	5-15	5-10	1.30-1.50	2-6	0.13-0.17	0.0-2.9	0.0-0.5	.49	.49			
	15-60	3-10	1.40-1.60	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.43	.43			
Timmerman-----	0-5	0-5	1.20-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	5-19	0-5	1.35-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.20	.20			
	19-60	0-5	1.40-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
133: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
134: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
135: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
136: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
137: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
138: Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.8-2.0	.55	.55	3	3	86
	4-27	2-8	1.30-1.50	2-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	27-45	2-8	1.30-1.50	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	45-55	---	1.60-1.80	<0.06	---	---	---	---	---			
	55-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
139: Sagehill-----	0-4	2-8	1.20-1.40	2-6	0.18-0.20	0.0-2.9	0.8-2.0	.55	.55	3	3	86
	4-27	2-8	1.30-1.50	2-6	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	27-45	2-8	1.30-1.50	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
	45-55	---	1.60-1.80	<0.06	---	---	---	---	---			
	55-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
											erodi-	erodi-
								Kw	Kf	T	bility group	bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
140: Sagehill-----	0-10	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.55	.55	4	3	86
	10-21	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	21-47	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	47-60	0-5	1.50-1.70	>20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
141: Sagehill-----	0-10	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.55	.55	4	3	86
	10-21	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	21-47	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	47-60	0-5	1.50-1.70	>20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
142: Sagehill-----	0-10	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.55	.55	4	3	86
	10-21	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	21-47	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	47-60	0-5	1.50-1.70	>20	0.03-0.05	0.0-2.9	0.0-0.5	.05	.20			
Kennewick, gravelly substratum-----	0-20	3-10	1.20-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-1.0	.55	.55	4	3	86
	20-52	3-10	1.30-1.50	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	52-60	0-2	1.45-1.65	>20	0.02-0.04	0.0-2.9	0.0-0.5	.02	.15			
143: Sagehill-----	0-6	2-8	1.30-1.60	2-6	0.15-0.17	0.0-2.9	0.8-2.0	.55	.55	5	3	86
	6-25	2-8	1.30-1.60	2-6	0.14-0.16	0.0-2.9	0.0-0.5	.55	.55			
	25-60	2-8	1.30-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
144: Sagemoor-----	0-4	5-10	1.20-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.55	.55	5	3	86
	4-9	5-10	1.20-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.55	.55			
	9-18	5-12	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.55			
	18-60	5-12	1.30-1.45	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
145: Sagemoor-----	0-4	5-10	1.20-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.55	.55	5	3	86
	4-9	5-10	1.20-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.55	.55			
	9-18	5-12	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.55			
	18-60	5-12	1.30-1.45	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
146: Sagemoor-----	0-4	5-10	1.20-1.35	0.6-2	0.16-0.20	0.0-2.9	1.0-2.0	.55	.55	5	3	8

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
148: Schlomer-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	3	5	56
	4-16	10-15	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.64	.64			
	16-22	10-15	1.20-1.40	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.64	.64			
	22-34	27-45	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-44	---	---	---	---	---	---	---	---			
149: Schlomer-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	3	5	56
	4-16	10-15	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.64	.64			
	16-22	10-15	1.20-1.40	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.64	.64			
	22-34	27-45	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-44	---	---	---	---	---	---	---	---			
150: Schlomer-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	3	5	56
	4-16	10-15	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.64	.64			
	16-22	10-15	1.20-1.40	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.64	.64			
	22-34	27-45	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-44	---	---	---	---	---	---	---	---			
151: Schlomer-----	0-4	10-15	1.20-1.40	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	3	5	56
	4-16	10-15	1.30-1.50	0.6-2	0.17-0.21	0.0-2.9	0.5-1.0	.64	.64			
	16-22	10-15	1.20-1.40	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.64	.64			
	22-34	27-45	1.20-1.40	0.2-0.6	0.17-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-44	---	---	---	---	---	---	---	---			
152: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
153: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
154: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
155: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
156: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
157: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
											erodi-	erodi-
								Kw	Kf	T	bility group	bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
158: Shano-----	0-13	5-10	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	13-45	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	45-50	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
159: Shano-----	0-13	5-10	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	13-45	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	45-50	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
160: Shano-----	0-13	5-10	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	13-45	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	45-50	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
161: Shano-----	0-13	5-10	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	13-45	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	45-50	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
162: Shano-----	0-13	5-10	1.10-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	5	56
	13-45	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
	45-50	5-10	1.25-1.40	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.55	.55			
	50-60	5-10	1.30-1.45	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.49			
163: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
164: Shano-----	0-6	5-10	1.15-1.30	0.6-2	0.18-0.20	0.0-2.9	1.0-2.0	.55	.55	5	5	56
	6-42	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
	42-60	5-10	1.30-1.45	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.64	.64			
Kennewick-----	0-8	3-12	1.15-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	5	4L	86
	8-60	3-18	1.30-1.50	0.2-0.6	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
165: Starbuck-----	0-10	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	10-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
166: Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
167: Starbuck-----	0-10	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	10-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
167:												
Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
168:												
Starbuck-----	0-4	5-10	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	4-14	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	14-24	---	---	---	---	---	---	---	---			
Prosser-----	0-7	5-12	1.25-1.45	0.6-2	0.14-0.18	0.0-2.9	0.5-1.0	.55	.55	2	3	86
	7-26	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	26-30	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	30-40	---	---	---	---	---	---	---	---			
Finley-----	0-4	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.7-1.0	.37	.37	3	3	86
	4-13	4-10	1.15-1.35	2-6	0.13-0.15	0.0-2.9	0.0-0.5	.37	.37			
	13-27	4-10	1.30-1.50	2-6	0.07-0.08	0.0-2.9	0.0-0.5	.10	.37			
	27-60	0-4	1.40-1.60	>20	0.02-0.03	0.0-2.9	0.0-0.5	.05	.24			
169:												
Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
Prosser-----	0-4	5-12	1.15-1.25	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	2	5	56
	4-22	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	22-33	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	33-43	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
170:												
Starbuck-----	0-10	5-10	1.20-1.35	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.55	.55	1	3	86
	10-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
Prosser-----	0-4	5-12	1.25-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.43	.43	2	3	86
	4-15	5-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	15-27	5-12	1.30-1.50	0.6-2	0.10-0.17	0.0-2.9	0.0-0.5	.55	.55			
	27-37	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
171:												
Starbuck-----	0-9	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	0.5-1.0	.55	.55	1	5	56
	9-17	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.32	.55			
	17-27	---	---	---	---	---	---	---	---			
Roloff-----	0-4	5-15	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	2	5	56
	4-15	5-15	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49			
	15-26	5-15	1.30-1.40	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.43	.55			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	---	---	---	---	---	---	---	---	---
172:												
Stratford-----	0-8	5-12	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-20	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	20-28	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	28-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
173: Stratford-----	0-8	5-12	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-20	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	20-28	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	28-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
174: Stratford-----	0-8	5-12	1.20-1.35	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.49	.49	3	5	56
	8-23	4-12	1.20-1.35	0.6-2	0.15-0.21	0.0-2.9	1.0-2.0	.49	.49			
	23-28	4-12	1.30-1.45	0.6-2	0.04-0.14	0.0-2.9	0.0-0.5	.15	.49			
	28-60	2-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
175: Stratford-----	0-12	5-15	1.20-1.35	0.6-2	0.11-0.13	0.0-2.9	1.0-2.0	.28	.49	3	6	48
	12-28	5-15	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.32	.49			
	28-60	0-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
176: Stratford-----	0-12	5-15	1.20-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.49	3	7	38
	12-20	5-15	1.30-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.32	.49			
	20-60	0-5	1.50-1.60	>20	0.02-0.04	0.0-2.9	0.0-0.5	.05	.28			
177: Tauncal-----	0-13	3-7	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.64	.64	2	3	86
	13-36	3-10	1.30-1.50	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	36-46	---	1.60-1.80	<0.06	---	---	---	---	---			
	46-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
178: Tauncal-----	0-13	3-7	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.64	.64	2	3	86
	13-36	3-10	1.30-1.50	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	36-46	---	1.60-1.80	<0.06	---	---	---	---	---			
	46-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
179: Tauncal-----	0-13	3-7	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.64	.64	2	3	86
	13-36	3-10	1.30-1.50	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	36-46	---	1.60-1.80	<0.06	---	---	---	---	---			
	46-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
180: Tauncal-----	0-13	3-7	1.25-1.45	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.64	.64	2	3	86
	13-36	3-10	1.30-1.50	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	36-46	---	1.60-1.80	<0.06	---	---	---	---	---			
	46-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
181: Taunton-----	0-6	5-8	1.15-1.40	2-6	0.16-0.20	0.0-2.9	0.5-2.0	.55	.55	2	3	86
	6-25	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	25-38	5-12	1.30-1.50	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.20	.49			
	38-48	---	---	<0.06	---	---	---	---	---			
	48-60	0-10	---	0.06-0.2	---	---	---	---	---			
182: Taunton-----	0-6	5-8	1.15-1.40	2-6	0.16-0.20	0.0-2.9	0.5-2.0	.55	.55	2	3	86
	6-25	5-12	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.0-0.5	.64	.64			
	25-38	5-12	1.30-1.50	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.20	.49			
	38-48	---	---	<0.06	---	---	---	---	---			
	48-60	0-10	---	0.06-0.2	---	---	---	---	---			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
183: Timmerman-----	0-5	0-5	1.20-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	5-19	0-5	1.35-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.20	.20			
	19-60	0-5	1.40-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
184: Timmerman-----	0-5	0-5	1.20-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	5-19	0-5	1.35-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.20	.20			
	19-60	0-5	1.40-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
185: Timmerman-----	0-5	0-5	1.20-1.40	2-6	0.13-0.15	0.0-2.9	0.5-1.0	.24	.24	2	3	86
	5-19	0-5	1.35-1.55	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.20	.20			
	19-60	0-5	1.40-1.60	6-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.20			
186: Urban land-----	---	---	---	---	---	---	---	---	---	---	---	---
Torripsamments-----	0-8	1-6	1.45-1.65	6-20	0.09-0.12	0.0-2.9	0.5-1.0	.32	.32	5	2	134
	8-31	1-6	1.50-1.70	6-20	0.08-0.12	0.0-2.9	0.0-0.5	.20	.20			
	31-60	0-5	1.50-1.70	>20	0.05-0.09	0.0-2.9	0.0-0.5	.20	.20			
187: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
188: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
189: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
190: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
191: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
192: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
								Kw	Kf	T		
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
193: Wacota-----	0-4	1-5	0.95-1.20	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55	5	2	134
	4-19	1-5	0.95-1.20	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	19-31	1-5	0.95-1.20	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	31-60	5-10	0.95-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
194: Wacota-----	0-8	1-5	0.80-1.00	0.6-2	0.18-0.21	0.0-2.9	0.5-2.0	.49	.49	5	2	134
	8-32	1-5	0.85-1.10	0.6-2	0.18-0.20	0.0-2.9	0.0-1.0	.55	.55			
	32-53	1-5	1.10-1.35	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	53-60	2-7	1.15-1.40	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
Ritzcal-----	0-4	10-18	1.10-1.30	0.6-2	0.18-0.21	0.0-2.9	1.0-2.0	.55	.55	5	4L	86
	4-28	10-18	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
	28-60	10-18	1.30-1.50	0.6-2	0.16-0.19	0.0-2.9	0.0-0.5	.55	.55			
195: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
196: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
197: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
198: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
199: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
200: Warden-----	0-6	5-10	1.20-1.30	0.6-2	0.15-0.17	0.0-2.9	1.0-3.0	.55	.55	5	3	86
	6-19	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	19-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
201: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
202: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
203: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			

Table 14.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (K _{sat})	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind	Wind
								Kw	Kf	T	erodi- bility group	erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
204: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
205: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
206: Warden-----	0-6	6-12	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	5	5	56
	6-24	8-12	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.64	.64			
	24-60	8-12	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.64	.64			
207: Warden-----	0-8	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	3	5	56
	8-36	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.55	.55			
	36-41	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.55			
	41-51	---	1.60-1.80	<0.06	---	---	---	---	---			
	51-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
208: Warden-----	0-8	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	3	5	56
	8-36	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.55	.55			
	36-41	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.55			
	41-51	---	1.60-1.80	<0.06	---	---	---	---	---			
	51-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
209: Warden-----	0-8	5-15	1.15-1.30	0.6-2	0.19-0.21	0.0-2.9	1.0-3.0	.55	.55	3	5	56
	8-36	8-15	1.30-1.45	0.6-2	0.16-0.20	0.0-2.9	0.0-0.5	.55	.55			
	36-41	8-15	1.35-1.50	0.6-2	0.19-0.21	0.0-2.9	0.0-0.5	.49	.55			
	41-51	---	1.60-1.80	<0.06	---	---	---	---	---			
	51-60	---	1.40-1.60	0.06-0.2	---	---	---	---	---			
210: Wiehl-----	0-5	5-8	1.20-1.40	2-6	0.13-0.17	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	5-16	5-8	1.30-1.50	0.6-2	0.15-0.19	0.0-2.9	0.0-0.5	.55	.55			
	16-23	5-8	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.43	.55			
	23-33	---	---	---	---	---	---	---	---			
211: Wiehl-----	0-8	5-8	1.20-1.40	2-6	0.13-0.17	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	8-18	5-8	1.30-1.50	0.6-2	0.15-0.19	0.0-2.9	0.0-0.5	.55	.55			
	18-25	5-8	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.43	.55			
	25-35	---	---	---	---	---	---	---	---			
212: Wiehl-----	0-8	5-8	1.20-1.40	2-6	0.13-0.17	0.0-2.9	0.5-1.0	.37	.37	3	3	86
	8-18	5-8	1.30-1.50	0.6-2	0.15-0.19	0.0-2.9	0.0-0.5	.55	.55			
	18-25	5-8	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.43	.55			
	25-35	---	---	---	---	---	---	---	---			
213: Wiehl-----	0-14	5-8	1.15-1.40	0.6-2	0.16-0.20	0.0-2.9	0.5-1.0	.55	.55	3	3	86
	14-29	5-8	1.30-1.50	0.6-2	0.15-0.19	0.0-2.9	0.0-0.5	.55	.55			
	29-36	5-8	1.30-1.50	0.6-2	0.13-0.17	0.0-2.9	0.0-0.5	.43	.55			
	36-46	---	---	---	---	---	---	---	---			

Table 14.--Physical Properties of the Soils--Continued

[illegible]

Table 15.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
1: Alderdale-----	0-3	1.0-6.0	6.6-7.8	0	0	0
	3-30	1.0-6.0	6.6-7.8	0	0	0
	30-35	1.0-6.0	6.6-8.4	0-5	0	0
	35-45	---	---	---	---	---
2: Aquents-----	0-4	1.0-6.0	7.9-9.0	0	0.0-4.0	0
	4-20	1.0-6.0	7.9-9.0	0	2.0-4.0	0
	20-60	1.0-10	7.9-9.0	0	2.0-4.0	0
Halaquepts-----	0-12	10-20	7.9-9.0	0-20	2.0-4.0	10-15
	12-60	10-20	7.9-8.4	0-20	0.0-2.0	0-5
3: Badland-----	0-60	---	---	---	---	---
Xeric Torriorthents--	0-3	6.0-14	7.4-8.4	1-5	0	0
	3-60	4.0-12	7.4-8.4	1-15	0	0
4: Burbank-----	0-3	1.0-6.0	7.4-8.4	0	0	0
	3-24	1.0-6.0	7.4-8.4	0	0	0
	24-27	1.0-6.0	7.4-8.4	0	0	0
	27-60	1.0-6.0	7.4-8.4	1-5	0	0
5: Burbank-----	0-3	1.0-6.0	7.4-8.4	0	0	0
	3-24	1.0-6.0	7.4-8.4	0	0	0
	24-27	1.0-6.0	7.4-8.4	0	0	0
	27-60	1.0-6.0	7.4-8.4	1-5	0	0
6: Burbank-----	0-5	1.0-6.0	7.4-8.4	0	0	0
	5-18	1.0-6.0	7.4-8.4	0	0	0
	18-38	1.0-6.0	7.4-8.4	0	0	0
	38-60	1.0-6.0	7.4-8.4	1-5	0	0
7: Burke-----	0-8	4.0-10	7.4-8.4	0	0	0
	8-26	4.0-12	7.4-9.0	0-15	0.0-2.0	0
	26-36	---	---	---	---	---
	36-60	---	---	---	---	---
8: Burke-----	0-8	4.0-10	7.4-8.4	0	0	0
	8-26	4.0-12	7.4-9.0	0-15	0.0-2.0	0
	26-36	---	---	---	---	---
	36-60	---	---	---	---	---
9: Burke-----	0-4	5.0-12	7.4-8.4	0	0	0
	4-22	4.0-12	7.4-9.0	0-15	0.0-2.0	0
	22-32	---	---	---	---	---
	32-60	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
10: Chedehap-----	0-4	2.0-7.0	6.6-7.8	0	0	0
	4-18	2.0-8.0	6.6-7.8	0	0	0
	18-31	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0-5
	31-60	1.0-3.0	7.9-9.0	5-15	0.0-2.0	10-20
11: Chedehap-----	0-4	2.0-7.0	6.6-7.8	0	0	0
	4-18	2.0-8.0	6.6-7.8	0	0	0
	18-31	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0-5
	31-60	1.0-3.0	7.9-9.0	5-15	0.0-2.0	10-20
12: Chedehap-----	0-4	2.0-7.0	6.6-7.8	0	0	0
	4-18	2.0-8.0	6.6-7.8	0	0	0
	18-31	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0-5
	31-60	1.0-3.0	7.9-9.0	5-15	0.0-2.0	10-20
13: Cleman-----	0-11	5.0-10	6.6-7.8	0	0	0
	11-28	5.0-10	6.6-7.8	0	0	0
	28-60	5.0-10	6.6-8.4	0-2	0	0
14: Eltopia-----	0-4	2.0-5.0	6.6-7.8	0	0	0
	4-13	2.0-5.0	6.6-7.8	0	0	0
	13-25	2.0-5.0	7.4-7.8	0	0	0
	25-35	2.0-5.0	7.9-8.4	5-15	0.0-2.0	0
	35-60	0.0-3.0	7.9-8.4	5-15	0.0-2.0	0
15: Eltopia-----	0-4	2.0-5.0	6.6-7.8	0	0	0
	4-13	2.0-5.0	6.6-7.8	0	0	0
	13-25	2.0-5.0	7.4-7.8	0	0	0
	25-35	2.0-5.0	7.9-8.4	5-15	0.0-2.0	0
	35-60	0.0-3.0	7.9-8.4	5-15	0.0-2.0	0
16: Ephrata-----	0-6	3.0-7.0	7.4-8.4	0	0	0
	6-28	1.0-3.0	7.4-8.4	0	0	0
	28-60	1.0-3.0	7.9-8.4	1-5	0.0-2.0	0
17: Esquatzel-----	0-15	5.0-10	6.6-7.8	0	0	0
	15-60	5.0-10	7.4-8.4	0-5	0	0
18: Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
19: Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
20:						
Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
21:						
Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
22:						
Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
23:						
Finley-----	0-6	5.0-10	6.6-7.8	0	0	0
	6-17	5.0-10	7.4-8.4	0	0	0
	17-32	5.0-10	7.4-8.4	1-5	0	0
	32-60	2.0-5.0	7.4-8.4	1-5	0	0
24:						
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
25:						
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
26:						
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
Burbank-----	0-3	1.0-6.0	7.4-8.4	0	0	0
	3-24	1.0-6.0	7.4-8.4	0	0	0
	24-27	1.0-6.0	7.4-8.4	0	0	0
	27-60	1.0-6.0	7.4-8.4	1-5	0	0
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
27:						
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
28: Halaquepts-----	0-8	4.0-11	7.9-11.0	0-10	8.0-32.0	30-50
	8-20	4.0-9.0	7.9-11.0	0-10	8.0-16.0	15-20
	20-34	3.0-7.0	7.9-9.0	0-10	4.0-8.0	0-15
	34-60	2.0-7.0	7.9-9.0	0-10	0.0-4.0	0-5
29: Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
30: Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
31: Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
32: Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-33	1.0-5.0	6.6-8.4	0	0	0
	33-45	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	45-50	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
	50-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
33: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
34: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
35: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
36: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
37: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
38: Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
39:						
Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
40:						
Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
Kennewick-----	0-8	5.0-10	7.4-8.4	1-6	0.0-2.0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
41:						
Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
Stratford-----	0-9	3.0-7.0	6.6-7.8	0	0	0
	9-19	3.0-8.0	6.6-7.8	0	0	0
	19-31	3.0-7.0	7.4-8.4	1-5	0	0
	31-35	3.0-8.0	7.4-8.4	1-5	0	0
	35-60	1.0-4.0	7.4-8.4	1-5	0	0
42:						
Kahlotus-----	0-10	10-20	6.6-7.8	0	0	0
	10-37	10-20	6.6-7.8	0	0	0
	37-60	10-20	7.9-8.4	1-10	0.0-2.0	0
Stratford-----	0-9	3.0-7.0	6.6-7.8	0	0	0
	9-19	3.0-8.0	6.6-7.8	0	0	0
	19-31	3.0-7.0	7.4-8.4	1-5	0	0
	31-35	3.0-8.0	7.4-8.4	1-5	0	0
	35-60	1.0-4.0	7.4-8.4	1-5	0	0
43:						
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
44:						
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
45:						
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
46:						
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
47:						
Kennewick-----	0-8	5.0-10	7.4-8.4	1-5	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-4.0	0
48:						
Kiona-----	0-19	5.0-10	7.4-7.8	0	0	0
	19-60	5.0-10	7.4-8.4	1-5	0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
48:						
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
49:						
Kiona-----	0-19	5.0-10	7.4-7.8	0	0	0
	19-60	5.0-10	7.4-8.4	1-5	0	0
Rock outcrop-----	0-60	---	---	---	---	---
50:						
Koehler-----	0-4	5.0-15	7.4-8.4	0	0	0
	4-35	5.0-15	7.4-8.4	0-10	0	0
	35-45	---	---	---	---	---
	45-60	---	---	---	---	---
51:						
Koehler-----	0-3	5.0-15	7.4-8.4	0	0	0
	3-20	5.0-15	7.4-8.4	0-10	0	0
	20-33	5.0-15	7.9-8.4	5-15	0.0-2.0	0
	33-43	---	---	---	---	---
	43-60	---	---	---	---	---
52:						
Licksillet-----	0-6	5.0-15	7.4-7.8	0	0	0
	6-13	10-20	6.6-7.3	0	0	0
	13-23	---	---	---	---	---
Bakeoven-----	0-3	10-25	6.1-7.8	0	0	0
	3-8	10-30	6.6-7.8	0	0	0
	8-18	---	---	---	---	---
53:						
Magallon-----	0-7	2.0-10	6.6-8.4	0	0	0
	7-15	2.0-6.0	7.4-8.4	0	0	0
	15-60	0.0-2.0	7.4-9.0	0	0.0-2.0	0
Stratford-----	0-9	3.0-7.0	6.6-7.8	0	0	0
	9-19	3.0-8.0	6.6-7.8	0	0	0
	19-31	3.0-7.0	7.4-8.4	1-5	0	0
	31-35	3.0-8.0	7.4-8.4	1-5	0	0
	35-60	1.0-4.0	7.4-8.4	1-5	0	0
Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
54:						
Magallon-----	0-7	2.0-10	6.6-8.4	0	0	0
	7-15	2.0-6.0	7.4-8.4	0	0	0
	15-60	0.0-2.0	7.4-9.0	0	0.0-2.0	0
Winchester-----	0-15	1.0-2.0	6.6-7.4	0	0	0
	15-60	1.0-2.0	7.4-8.4	0-5	0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
54: Farrell-----	0-7	2.0-10	6.6-7.8	0	0	0
	7-41	2.0-8.0	7.4-8.4	0	0	0
	41-48	2.0-8.0	7.9-9.0	2-10	0.0-2.0	0
	48-60	0.0-2.0	7.9-9.0	2-10	0.0-2.0	0
55: Malaga-----	0-6	10-20	6.1-7.8	0	0	0
	6-11	10-20	6.1-7.8	0	0	0
	11-18	10-20	6.1-7.8	0	0	0
	18-60	5.0-10	6.1-8.4	1-5	0	0
56: Nansene-----	0-22	5.0-15	6.1-7.8	0	0	0
	22-54	5.0-10	6.1-7.8	0	0	0
	54-60	5.0-10	6.6-8.4	0-2	0	0
Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
57: Neppel-----	0-4	10-20	6.6-7.8	0	0	0
	4-22	10-20	6.6-8.4	0-5	0	0
	22-28	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	28-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
58: Neppel-----	0-4	10-20	6.6-7.8	0	0	0
	4-22	10-20	6.6-8.4	0-5	0	0
	22-28	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	28-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
59: Neppel-----	0-4	10-20	6.6-7.8	0	0	0
	4-22	10-20	6.6-8.4	0-5	0	0
	22-28	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	28-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
60: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
61: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
62: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
63: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
64: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
65: Neppel-----	0-7	10-20	6.6-7.8	0	0	0
	7-30	10-20	6.6-8.4	0-5	0	0
	30-37	5.0-10	8.5-9.0	5-15	0.0-2.0	0
	37-60	5.0-10	8.5-9.0	1-10	0.0-2.0	0
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
66: Novark-----	0-5	5.0-10	7.4-8.4	0	0	0
	5-17	5.0-10	7.4-8.4	0	0	0
	17-21	5.0-10	7.9-8.4	2-15	0.0-2.0	0
	21-60	0.0-2.0	7.9-8.4	0-10	0.0-2.0	0
67: Ottmar-----	0-7	4.0-8.0	6.6-7.8	0	0	0
	7-17	4.0-8.0	6.6-7.8	0	0	0
	17-34	8.0-14	6.6-7.8	0	0	0
	34-48	10-20	7.9-8.4	2-7	0	0
	48-60	---	---	---	---	---
68: Ottmar-----	0-7	4.0-8.0	6.6-7.8	0	0	0
	7-17	4.0-8.0	6.6-7.8	0	0	0
	17-34	8.0-14	6.6-7.8	0	0	0
	34-48	10-20	7.9-8.4	2-7	0	0
	48-60	---	---	---	---	---
69: Ottmar-----	0-7	4.0-8.0	6.6-7.8	0	0	0
	7-17	4.0-8.0	6.6-7.8	0	0	0
	17-34	8.0-14	6.6-7.8	0	0	0
	34-48	10-20	7.9-8.4	2-7	0	0
	48-60	---	---	---	---	---
70: Ottmar-----	0-4	4.0-8.0	7.4-8.4	0	0	0
	4-16	10-20	7.4-8.4	0	0	0-2
	16-46	10-20	7.9-9.0	2-7	0.0-2.0	0-2
	46-60	8.0-16	7.9-9.0	2-7	0.0-2.0	0-2
71: Ottmar-----	0-4	4.0-8.0	7.4-8.4	0	0	0
	4-16	10-20	7.4-8.4	0	0	0-2
	16-46	10-20	7.9-9.0	2-7	0.0-2.0	0-2
	46-60	8.0-16	7.9-9.0	2-7	0.0-2.0	0-2
72: Ottmar-----	0-4	4.0-8.0	7.4-8.4	0	0	0
	4-16	10-20	7.4-8.4	0	0	0-2
	16-46	10-20	7.9-9.0	2-7	0.0-2.0	0-2
	46-60	8.0-16	7.9-9.0	2-7	0.0-2.0	0-2

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
73: Ottmar-----	0-10	10-20	7.4-8.4	0	0	0
	10-47	10-20	7.4-8.4	0	0	0-2
	47-60	10-20	7.9-9.0	2-7	0.0-2.0	0-2
74: Ottmar-----	0-10	10-20	7.4-8.4	0	0	0
	10-47	10-20	7.4-8.4	0	0	0-2
	47-60	10-20	7.9-9.0	2-7	0.0-2.0	0-2
75: Ottmar-----	0-7	4.0-8.0	6.6-7.8	0	0	0
	7-17	4.0-8.0	6.6-7.8	0	0	0
	17-34	8.0-14	6.6-7.8	0	0	0
	34-48	10-20	7.9-8.4	2-7	0	0
	48-60	---	---	---	---	---
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
76: Pits-----	0-60	---	---	---	---	---
77: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
78: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
79: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
80: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---
81: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---
82: Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
83:						
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
84:						
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
Starbuck-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
85:						
Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
86:						
Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
87:						
Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
88:						
Quincy-----	0-9	1.0-3.0	6.6-8.4	0	0	0
	9-60	1.0-3.0	6.6-8.4	0-3	0	0
89:						
Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
90:						
Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
91:						
Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
92:						
Quincy-----	0-3	1.0-4.0	6.6-8.4	0	0	0
	3-52	1.0-4.0	6.6-8.4	0-5	0	0
	52-60	3.0-8.0	7.4-9.0	5-15	0.0-2.0	0-5
93:						
Quincy-----	0-3	1.0-4.0	6.6-8.4	0	0	0
	3-52	1.0-4.0	6.6-8.4	0-5	0	0
	52-60	3.0-8.0	7.4-9.0	5-15	0.0-2.0	0-5

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
94: Quincy-----	0-3	1.0-4.0	6.6-8.4	0	0	0
	3-52	1.0-4.0	6.6-8.4	0-5	0	0
	52-60	3.0-8.0	7.4-9.0	5-15	0.0-2.0	0-5
95: Quincy, cemented Substratum-----	0-4	2.0-7.0	6.6-8.4	0	0	0
	4-45	1.0-6.0	6.6-8.4	0-3	0	0
	45-55	---	---	---	---	---
	55-60	---	---	---	---	---
Quincy, very gravelly Substratum-----	0-7	2.0-7.0	6.6-7.8	0	0	0
	7-45	1.0-6.0	6.6-8.4	0	0	0
	45-60	1.0-6.0	7.9-8.4	0-3	0.0-2.0	0
96: Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
Dune land-----	0-60	---	---	---	---	---
97: Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
98: Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
99: Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
Hezel-----	0-9	1.0-5.0	6.6-8.4	0	0	0
	9-28	1.0-5.0	6.6-8.4	0	0	0
	28-60	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
100: Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
Hezel-----	0-7	1.0-5.0	6.6-8.4	0	0	0
	7-18	1.0-5.0	6.6-8.4	0	0	0
	18-27	1.0-5.0	7.4-9.0	1-5	0.0-2.0	0
	27-60	1.0-5.0	7.4-9.0	5-15	0.0-2.0	0
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-22	4.0-8.0	6.6-7.8	0	0	0
	22-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
101:						
Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
Quinton-----	0-7	1.0-4.0	6.6-8.4	0	0	0
	7-25	1.0-3.0	6.6-8.4	0	0	0
	25-35	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
102:						
Quincy-----	0-4	1.0-3.0	6.6-8.4	0	0	0
	4-60	1.0-3.0	6.6-8.4	0-3	0	0
Timmerman-----	0-5	5.0-10	6.6-7.8	0	0	0
	5-19	5.0-10	6.6-7.8	0	0	0
	19-60	0.0-5.0	7.4-9.0	2-15	0.0-2.0	0
103:						
Quincy-----	0-11	1.0-3.0	6.6-8.4	0	0	0
	11-60	1.0-3.0	6.6-8.4	0-3	0	0
Wanser-----	0-4	2.0-7.0	7.9-9.0	0	4.0-16.0	0
	4-60	1.0-6.0	7.9-9.0	0	2.0-8.0	0
104:						
Rinquin-----	0-7	2.0-7.0	6.6-7.8	0	0	0
	7-21	2.0-7.0	6.6-7.8	0	0	0
	21-26	2.0-7.0	7.4-8.4	2-10	0	0
	26-36	---	---	---	---	---
105:						
Ritzcal-----	0-4	7.0-12	7.9-8.4	2-15	0	0
	4-28	5.0-10	7.9-9.0	5-25	0.0-2.0	0
	28-60	5.0-10	7.9-9.0	5-25	0.0-2.0	0
Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
106:						
Ritzcal-----	0-4	7.0-12	7.9-8.4	2-15	0	0
	4-28	5.0-10	7.9-9.0	5-25	0.0-2.0	0
	28-60	5.0-10	7.9-9.0	5-25	0.0-2.0	0
Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
107:						
Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
108:						
Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
109: Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
110: Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
111: Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
112: Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
113: Ritzville-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-34	5.0-10	7.4-8.4	0	0	0
	34-44	5.0-10	7.4-8.4	2-5	0	0
	44-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
114: Ritzville-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-34	5.0-10	7.4-8.4	0	0	0
	34-44	5.0-10	7.4-8.4	2-5	0	0
	44-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
115: Ritzville-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-34	5.0-10	7.4-8.4	0	0	0
	34-44	5.0-10	7.4-8.4	2-5	0	0
	44-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
116: Ritzville-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-34	5.0-10	7.4-8.4	0	0	0
	34-44	5.0-10	7.4-8.4	2-5	0	0
	44-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
117: Ritzville-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-34	5.0-10	7.4-8.4	0	0	0
	34-44	5.0-10	7.4-8.4	2-5	0	0
	44-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
118: Ritzville-----	0-12	5.0-10	6.6-7.8	0	0	0
	12-41	5.0-10	6.6-7.8	0	0	0
	41-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
Nansene-----	0-22	5.0-15	6.1-7.8	0	0	0
	22-54	5.0-10	6.1-7.8	0	0	0
	54-60	5.0-10	6.6-8.4	0-2	0	0
119: Riverwash-----	0-60	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
120:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
121:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
122:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
123:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
Lickskillet-----	0-6	5.0-15	7.4-7.8	0	0	0
	6-13	10-20	6.6-7.3	0	0	0
	13-23	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---	---
124:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
125:						
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
Rubble land-----	0-60	---	---	---	---	---
126:						
Royal-----	0-6	1.0-4.0	6.6-7.8	0	0	0
	6-19	2.0-5.0	6.6-7.8	0	0	0
	19-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
127:						
Royal-----	0-6	1.0-4.0	6.6-7.8	0	0	0
	6-19	2.0-5.0	6.6-7.8	0	0	0
	19-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
128:						
Royal-----	0-5	2.0-5.0	6.6-7.8	0	0	0
	5-15	2.0-5.0	6.6-7.8	0	0	0
	15-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
129: Royal-----	0-5	2.0-5.0	6.6-7.8	0	0	0
	5-15	2.0-5.0	6.6-7.8	0	0	0
	15-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
130: Royal-----	0-5	2.0-5.0	6.6-7.8	0	0	0
	5-15	2.0-5.0	6.6-7.8	0	0	0
	15-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
131: Royal-----	0-5	2.0-5.0	6.6-7.8	0	0	0
	5-24	2.0-5.0	6.6-7.8	0	0	0
	24-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
132: Royal-----	0-5	2.0-5.0	6.6-7.8	0	0	0
	5-15	2.0-5.0	6.6-7.8	0	0	0
	15-60	1.0-5.0	7.9-9.0	5-15	0.0-2.0	0
Timmerman-----	0-5	5.0-10	6.6-7.8	0	0	0
	5-19	5.0-10	6.6-7.8	0	0	0
	19-60	0.0-5.0	7.4-9.0	2-15	0.0-2.0	0
133: Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
134: Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
135: Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
136: Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
137: Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
138: Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0
	4-27	5.0-10	6.6-8.4	0	0	0
	27-45	5.0-10	7.4-8.4	5-15	0	0
	45-55	---	---	---	---	---
	55-60	---	---	---	---	---
139: Sagehill-----	0-4	5.0-10	6.6-8.4	0	0	0
	4-27	5.0-10	6.6-8.4	0	0	0
	27-45	5.0-10	7.4-8.4	5-15	0	0
	45-55	---	---	---	---	---
	55-60	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
140:						
Sagehill-----	0-10	5.0-10	6.6-8.4	0	0	0
	10-21	5.0-10	6.6-8.4	0	0	0
	21-47	5.0-10	7.9-9.0	5-15	0.0-2.0	0
	47-60	1.0-5.0	7.9-9.0	0-10	0.0-2.0	0
141:						
Sagehill-----	0-10	5.0-10	6.6-8.4	0	0	0
	10-21	5.0-10	6.6-8.4	0	0	0
	21-47	5.0-10	7.9-9.0	5-15	0.0-2.0	0
	47-60	1.0-5.0	7.9-9.0	0-10	0.0-2.0	0
142:						
Sagehill-----	0-10	5.0-10	6.6-8.4	0	0	0
	10-21	5.0-10	6.6-8.4	0	0	0
	21-47	5.0-10	7.9-9.0	5-15	0.0-2.0	0
	47-60	1.0-5.0	7.9-9.0	0-10	0.0-2.0	0
Kennewick, gravelly substratum-----	0-20	5.0-10	7.4-8.4	1-6	0	0
	20-52	5.0-10	7.9-8.4	1-6	0.0-2.0	0
	52-60	1.0-5.0	7.9-8.4	1-6	0.0-2.0	0
143:						
Sagehill-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-25	5.0-10	6.6-8.4	0	0	0
	25-60	5.0-10	7.9-9.0	2-20	0.0-2.0	0
Kennewick-----	0-8	5.0-10	7.4-8.4	1-6	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-2.0	0
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
144:						
Sagemoor-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-9	5.0-10	6.6-7.8	0	0	0
	9-18	5.0-10	6.6-7.8	0	0	0
	18-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
145:						
Sagemoor-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-9	5.0-10	6.6-7.8	0	0	0
	9-18	5.0-10	6.6-7.8	0	0	0
	18-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
146:						
Sagemoor-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-9	5.0-10	6.6-7.8	0	0	0
	9-18	5.0-10	6.6-7.8	0	0	0
	18-60	5.0-10	7.9-9.0	5-15	0.0-2.0	0
147:						
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
148:						
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
149:						
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
150:						
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
151:						
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
152:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
153:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
154:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
155:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
156:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
157:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
158:						
Shano-----	0-13	5.0-10	6.6-7.8	0	0	0
	13-45	5.0-12	7.4-8.4	0	0	0
	45-50	5.0-10	7.4-9.0	2-15	0.0-2.0	0
	50-60	5.0-14	7.4-9.0	5-15	0.0-2.0	0
159:						
Shano-----	0-13	5.0-10	6.6-7.8	0	0	0
	13-45	5.0-12	7.4-8.4	0	0	0
	45-50	5.0-10	7.4-9.0	2-15	0.0-2.0	0
	50-60	5.0-14	7.4-9.0	5-15	0.0-2.0	0
160:						
Shano-----	0-13	5.0-10	6.6-7.8	0	0	0
	13-45	5.0-12	7.4-8.4	0	0	0
	45-50	5.0-10	7.4-9.0	2-15	0.0-2.0	0
	50-60	5.0-14	7.4-9.0	5-15	0.0-2.0	0
161:						
Shano-----	0-13	5.0-10	6.6-7.8	0	0	0
	13-45	5.0-12	7.4-8.4	0	0	0
	45-50	5.0-10	7.4-9.0	2-15	0.0-2.0	0
	50-60	5.0-14	7.4-9.0	5-15	0.0-2.0	0
162:						
Shano-----	0-13	5.0-10	6.6-7.8	0	0	0
	13-45	5.0-12	7.4-8.4	0	0	0
	45-50	5.0-10	7.4-9.0	2-15	0.0-2.0	0
	50-60	5.0-14	7.4-9.0	5-15	0.0-2.0	0
163:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
Kennewick-----	0-8	5.0-10	7.4-8.4	1-6	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-2.0	0
164:						
Shano-----	0-6	5.0-10	6.6-8.4	0	0	0
	6-42	5.0-12	7.4-8.4	0	0	0
	42-60	5.0-14	7.4-9.0	2-15	0.0-2.0	0
Kennewick-----	0-8	5.0-10	7.4-8.4	1-6	0	0
	8-60	5.0-10	7.9-9.0	1-15	0.0-2.0	0
165:						
Starbuck-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
166:						
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
167:						
Starbuck-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
167:						
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
168:						
Starbuck-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-14	5.0-10	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Prosser-----	0-7	5.0-15	6.6-7.8	0	0	0
	7-26	5.0-15	7.4-8.4	0	0	0
	26-30	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	30-40	---	---	---	---	---
Finley-----	0-4	5.0-10	6.6-7.8	0	0	0
	4-13	5.0-10	7.4-8.4	0	0	0
	13-27	5.0-10	7.4-8.4	1-5	0	0
	27-60	2.0-5.0	7.4-8.4	1-5	0	0
169:						
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-22	5.0-15	7.4-8.4	0	0	0
	22-33	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	33-43	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
170:						
Starbuck-----	0-10	5.0-10	6.6-7.8	0	0	0
	10-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Prosser-----	0-4	5.0-15	6.6-7.8	0	0	0
	4-15	5.0-15	7.4-8.4	0	0	0
	15-27	5.0-15	7.9-8.4	1-5	0.0-2.0	0
	27-37	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
171:						
Starbuck-----	0-9	5.0-10	6.6-7.8	0	0	0
	9-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Roloff-----	0-4	5.0-18	6.6-7.8	0	0	0
	4-15	5.0-18	6.6-7.8	0	0	0
	15-26	5.0-18	7.4-9.0	0-10	0.0-2.0	0
	26-36	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---
172:						
Stratford-----	0-8	4.0-8.0	7.4-7.8	0	0	0
	8-20	3.0-8.0	6.6-7.8	0	0	0
	20-28	3.0-8.0	7.4-8.4	1-5	0	0
	28-60	1.0-4.0	7.4-8.4	1-5	0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
173: Stratford-----	0-8	4.0-8.0	7.4-7.8	0	0	0
	8-20	3.0-8.0	6.6-7.8	0	0	0
	20-28	3.0-8.0	7.4-8.4	1-5	0	0
	28-60	1.0-4.0	7.4-8.4	1-5	0	0
174: Stratford-----	0-8	4.0-8.0	7.4-7.8	0	0	0
	8-23	3.0-8.0	6.6-7.8	0	0	0
	23-28	3.0-8.0	7.4-8.4	1-5	0	0
	28-60	1.0-4.0	7.4-8.4	1-5	0	0
175: Stratford-----	0-12	4.0-8.0	6.6-7.8	0	0	0
	12-28	4.0-8.0	6.6-8.4	0	0	0
	28-60	1.0-4.0	7.4-8.4	1-5	0	0
176: Stratford-----	0-12	4.0-8.0	6.6-7.8	0	0	0
	12-20	4.0-8.0	6.6-8.4	0	0	0
	20-60	1.0-4.0	7.4-8.4	1-5	0	0
177: Tauncal-----	0-13	5.0-10	7.4-8.4	1-5	0	0
	13-36	5.0-10	7.9-8.4	5-15	0.0-2.0	0-2
	36-46	---	---	---	---	---
	46-60	---	---	---	---	---
178: Tauncal-----	0-13	5.0-10	7.4-8.4	1-5	0	0
	13-36	5.0-10	7.9-8.4	5-15	0.0-2.0	0-2
	36-46	---	---	---	---	---
	46-60	---	---	---	---	---
179: Tauncal-----	0-13	5.0-10	7.4-8.4	1-5	0	0
	13-36	5.0-10	7.9-8.4	5-15	0.0-2.0	0-2
	36-46	---	---	---	---	---
	46-60	---	---	---	---	---
180: Tauncal-----	0-13	5.0-10	7.4-8.4	1-5	0	0
	13-36	5.0-10	7.9-8.4	5-15	0.0-2.0	0-2
	36-46	---	---	---	---	---
	46-60	---	---	---	---	---
181: Taunton-----	0-6	10-20	7.4-8.4	0	0	0
	6-25	10-20	7.4-9.0	0	0.0-2.0	0
	25-38	10-20	7.4-9.0	10-25	0.0-2.0	0
	38-48	---	---	---	---	---
	48-60	---	---	---	---	---
182: Taunton-----	0-6	10-20	7.4-8.4	0	0	0
	6-25	10-20	7.4-9.0	0	0.0-2.0	0
	25-38	10-20	7.4-9.0	10-25	0.0-2.0	0
	38-48	---	---	---	---	---
	48-60	---	---	---	---	---

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
183: Timmerman-----	0-5	5.0-10	6.6-7.8	0	0	0
	5-19	5.0-10	6.6-7.8	0	0	0
	19-60	0.0-5.0	7.4-9.0	2-15	0.0-2.0	0
184: Timmerman-----	0-5	5.0-10	6.6-7.8	0	0	0
	5-19	5.0-10	6.6-7.8	0	0	0
	19-60	0.0-5.0	7.4-9.0	2-15	0.0-2.0	0
185: Timmerman-----	0-5	5.0-10	6.6-7.8	0	0	0
	5-19	5.0-10	6.6-7.8	0	0	0
	19-60	0.0-5.0	7.4-9.0	2-15	0.0-2.0	0
186: Urban land-----	---	---	---	---	---	---
Torripsamments-----	0-8	2.0-7.0	6.6-8.4	0	0	0
	8-31	2.0-7.0	6.6-8.4	0	0	0
	31-60	1.0-6.0	6.6-8.4	2-5	0	0
187: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
188: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
189: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
190: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
191: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
192: Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
193:						
Wacota-----	0-4	5.0-10	6.6-7.3	0	0	0
	4-19	5.0-10	6.6-7.8	0	0	0
	19-31	5.0-10	6.6-7.8	0	0	0
	31-60	5.0-10	7.4-8.4	1-5	0	0
194:						
Wacota-----	0-8	5.0-10	6.6-7.8	0	0	0
	8-32	5.0-15	6.6-7.8	0	0	0
	32-53	5.0-15	6.6-8.4	0	0	0
	53-60	5.0-15	7.4-9.0	2-10	0.0-2.0	1-3
Ritzcal-----	0-4	7.0-12	7.9-8.4	2-15	0	0
	4-28	5.0-10	7.9-9.0	5-25	0.0-2.0	0
	28-60	5.0-10	7.9-9.0	5-25	0.0-2.0	0
195:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
196:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
197:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
198:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
199:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
200:						
Warden-----	0-6	2.0-9.0	6.6-7.8	0	0	0
	6-19	4.0-8.0	6.6-7.8	0	0	0
	19-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
201:						
Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
202:						
Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
203:						
Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
204: Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
205: Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
206: Warden-----	0-6	3.0-10	6.6-7.8	0	0	0
	6-24	4.0-8.0	6.6-7.8	0	0	0
	24-60	4.0-8.0	7.9-9.0	3-8	0.0-2.0	0
207: Warden-----	0-8	8.0-12	6.6-7.8	0	0	0
	8-36	5.0-12	7.4-8.4	0	0	0
	36-41	5.0-12	7.9-9.0	2-15	0.0-2.0	0
	41-51	---	---	---	---	---
	51-60	---	---	---	---	---
208: Warden-----	0-8	8.0-12	6.6-7.8	0	0	0
	8-36	5.0-12	7.4-8.4	0	0	0
	36-41	5.0-12	7.9-9.0	2-15	0.0-2.0	0
	41-51	---	---	---	---	---
	51-60	---	---	---	---	---
209: Warden-----	0-8	8.0-12	6.6-7.8	0	0	0
	8-36	5.0-12	7.4-8.4	0	0	0
	36-41	5.0-12	7.9-9.0	2-15	0.0-2.0	0
	41-51	---	---	---	---	---
	51-60	---	---	---	---	---
210: Wiehl-----	0-5	5.0-10	7.4-7.8	0	0	0
	5-16	5.0-15	6.6-7.8	0	0	0
	16-23	5.0-15	7.4-8.4	1-5	0	0
	23-33	---	---	---	---	0
211: Wiehl-----	0-8	5.0-10	7.4-7.8	0	0	0
	8-18	5.0-15	6.6-7.8	0	0	0
	18-25	5.0-15	7.4-8.4	1-5	0	0
	25-35	---	---	---	---	0
212: Wiehl-----	0-8	5.0-10	7.4-7.8	0	0	0
	8-18	5.0-15	6.6-7.8	0	0	0
	18-25	5.0-15	7.4-8.4	1-5	0	0
	25-35	---	---	---	---	0
213: Wiehl-----	0-14	5.0-10	7.4-7.8	0	0	0
	14-29	5.0-15	6.6-7.8	0	0	0
	29-36	5.0-15	7.4-8.4	1-5	0	0
	36-46	---	---	---	---	0

Table 15.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Soil reaction	Calcium carbon- ate	Salinity	Sodium adsorption ratio
	<i>In</i>	<i>meq/100 g</i>	<i>pH</i>	<i>Pct</i>	<i>mmhos/cm</i>	
214: Wiehl-----	0-14	5.0-10	7.4-7.8	0	0	0
	14-29	5.0-15	6.6-7.8	0	0	0
	29-36	5.0-15	7.4-8.4	1-5	0	0
	36-46	---	---	---	---	0
215: Wiehl-----	0-14	5.0-10	7.4-7.8	0	0	0
	14-29	5.0-15	6.6-7.8	0	0	0
	29-36	5.0-15	7.4-8.4	1-5	0	0
	36-46	---	---	---	---	0
Schlomer-----	0-4	8.0-14	7.4-7.8	0	0	0
	4-16	8.0-14	7.4-7.8	0	0	0
	16-22	8.0-14	7.4-7.8	0	0	0
	22-34	25-40	7.4-8.4	1-5	0	0
	34-44	---	---	---	---	---
216: Willis-----	0-10	2.0-7.0	6.6-7.8	0	0	0
	10-18	2.0-5.0	7.4-8.4	0	0	0
	18-22	2.0-5.0	7.9-9.0	1-10	0.0-2.0	0
	22-32	---	---	---	---	---
	32-60	---	---	---	---	---
217: Winchester-----	0-15	1.0-2.0	6.6-7.8	0	0	0
	15-60	1.0-2.0	7.4-8.4	0-5	0	0
218: Winchester-----	0-15	1.0-2.0	6.6-7.8	0	0	0
	15-60	1.0-2.0	7.4-8.4	0-5	0	0
219: Xeric Torriorthents--	0-3	6.0-14	7.4-8.4	1-5	0	0
	3-60	4.0-12	7.4-8.4	1-15	0	0
220: Water-----	---	---	---	---	---	---
221: Dam-----	---	---	---	---	---	---

Table 16.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
1: Alderdale-----	C	Jan-Dec	---	---	---	---	None	---	None
2: Aguents-----	D	April	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		May	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.0-1.5	>6.0	---	---	None	Brief	Occasional
		July	0.0-1.5	>6.0	---	---	None	---	None
		August	0.0-1.5	>6.0	---	---	None	---	None
		September	0.0-1.5	>6.0	---	---	None	---	None
		October	0.0-1.5	>6.0	---	---	None	---	None
		November	0.0-1.5	>6.0	---	---	None	---	None
Halaquepts-----	B	April	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		May	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.5	>6.0	---	---	None	Brief	Occasional
		July	0.5-1.5	>6.0	---	---	None	---	None
		August	0.5-1.5	>6.0	---	---	None	---	None
		September	0.5-1.5	>6.0	---	---	None	---	None
		October	0.5-1.5	>6.0	---	---	None	---	None
		November	0.5-1.5	>6.0	---	---	None	---	None
3: Badland-----	D	Jan-Dec	---	---	---	---	None	---	None
Xeric Torriorthents---	D	Jan-Dec	---	---	---	---	None	---	None
4: Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
5: Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
6: Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
7: Burke-----	C	Jan-Dec	---	---	---	---	None	---	None
8: Burke-----	C	Jan-Dec	---	---	---	---	None	---	None
9: Burke-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
10: Chedehap-----	B	Jan-Dec	---	---	---	---	None	---	None
11: Chedehap-----	B	Jan-Dec	---	---	---	---	None	---	None
12: Chedehap-----	B	Jan-Dec	---	---	---	---	None	---	None
13: Cleman-----	B	April May	---	---	---	---	None None	---	Rare Rare
14: Eltopia-----	C	Jan-Dec	---	---	---	---	None	---	None
15: Eltopia-----	C	Jan-Dec	---	---	---	---	None	---	None
16: Ephrata-----	B	Jan-Dec	---	---	---	---	None	---	None
17: Esquatzel-----	B	April May	---	---	---	---	None None	---	Rare Rare
18: Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
19: Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
20: Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
21: Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
22: Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
23: Finley-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
24: Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
25: Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
26: Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
Burbank-----	A	Jan-Dec	---	---	---	---	None	---	None
Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
27: Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
28: Halaquepts-----	B	April	0.5-3.0	>6.0	---	---	None	---	None
		May	0.5-3.0	>6.0	---	---	None	---	None
		June	0.5-3.0	>6.0	---	---	None	---	None
		July	0.5-3.0	>6.0	---	---	None	---	None
		August	0.5-3.0	>6.0	---	---	None	---	None
		September	0.5-3.0	>6.0	---	---	None	---	None
		October	0.5-3.0	>6.0	---	---	None	---	None
29: Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
30: Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
31: Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
32: Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
33: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
34: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
35: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
36: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
37: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
38: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
39: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
40: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
41: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
42: Kahlotus-----	B	Jan-Dec	---	---	---	---	None	---	None
Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
43: Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
44: Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
45: Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
46: Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
47: Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
48: Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
49: Kiona-----	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
50: Koehler-----	C	Jan-Dec	---	---	---	---	None	---	None
51: Koehler-----	C	Jan-Dec	---	---	---	---	None	---	None
52: Licksillet-----	D	Jan-Dec	---	---	---	---	None	---	None
Bakeoven-----	D	Jan-Dec	---	---	---	---	None	---	None
53: Magallon-----	B	Jan-Dec	---	---	---	---	None	---	None
Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
54: Magallon-----	B	Jan-Dec	---	---	---	---	None	---	None
Winchester-----	A	Jan-Dec	---	---	---	---	None	---	None
Farrell-----	B	Jan-Dec	---	---	---	---	None	---	None
55: Malaga-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
56: Nansene-----	B	Jan-Dec	---	---	---	---	None	---	None
Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
57: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
58: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
59: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
60: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
61: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
62: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
63: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
64: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
65: Neppel-----	B	Jan-Dec	---	---	---	---	None	---	None
Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
66: Novark-----	B	Jan-Dec	---	---	---	---	None	---	None
67: Ottmar-----	B	Jan-Dec	---	---	---	---	None	---	None
68: Ottmar-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
69: Ottmar-----	B	Jan-Dec	---	---	---	---	None	---	None
70: Ottmar-----	C	Jan-Dec	---	---	---	---	None	---	None
71: Ottmar-----	C	Jan-Dec	---	---	---	---	None	---	None
72: Ottmar-----	C	Jan-Dec	---	---	---	---	None	---	None
73: Ottmar-----	C	Jan-Dec	---	---	---	---	None	---	None
74: Ottmar-----	C	Jan-Dec	---	---	---	---	None	---	None
75: Ottmar-----	B	Jan-Dec	---	---	---	---	None	---	None
Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
76: Pits-----	---	---	---	---	---	---	---	---	---
77: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
78: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
79: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
80: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
81: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
82: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
83: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
84: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
85: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
86: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
87: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
88: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
89: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
90: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
91: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
92: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
93: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
94: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
95: Quincy, cemented substratum-----	A	Jan-Dec	---	---	---	---	None	---	None
Quincy, very gravelly Substratum-----	A	Jan-Dec	---	---	---	---	None	---	None
96: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Dune land-----	A	Jan-Dec	---	---	---	---	None	---	None
97: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
98: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
99: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
100: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Hezel-----	B	Jan-Dec	---	---	---	---	None	---	None
Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
101: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Quinton-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
102: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
102: Timmerman-----	B	Jan-Dec	---	---	---	---	None	---	None
103: Quincy-----	A	Jan-Dec	---	---	---	---	None	---	None
Wanser-----	D	January	---	---	---	---	None	Brief	Occasional
		February	---	---	---	---	None	Brief	Occasional
		March	---	---	---	---	None	Brief	Occasional
		April	---	---	---	---	None	Brief	Occasional
		May	0.5-1.0	>6.0	---	---	None	Brief	Occasional
		June	0.5-1.0	>6.0	---	---	None	---	None
		July	0.5-1.0	>6.0	---	---	None	---	None
		August	0.5-1.0	>6.0	---	---	None	---	None
		September	0.5-1.0	>6.0	---	---	None	---	None
		October	0.5-1.0	>6.0	---	---	None	---	None
		November	0.5-1.0	>6.0	---	---	None	---	None
104: Rinquin-----	C	Jan-Dec	---	---	---	---	None	---	None
105: Ritzcal-----	B	Jan-Dec	---	---	---	---	None	---	None
Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
106: Ritzcal-----	B	Jan-Dec	---	---	---	---	None	---	None
Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
107: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
108: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
109: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
110: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
111: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
112: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
113: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
114: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
115: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
116: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
117: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
118: Ritzville-----	B	Jan-Dec	---	---	---	---	None	---	None
Nansene-----	B	Jan-Dec	---	---	---	---	None	---	None
119: Riverwash-----	D	January	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		February	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		March	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		April	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		May	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		June	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		July	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		August	0.0-2.0	>6.0	---	---	None	---	None
		September	0.0-2.0	>6.0	---	---	None	---	None
		October	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		November	0.0-2.0	>6.0	---	---	None	Very long	Frequent
		December	0.0-2.0	>6.0	---	---	None	Very long	Frequent
120: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
121: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
122: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
123: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
123: Licksillet-----	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Jan-Dec	---	---	---	---	None	---	None
124: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
125: Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Jan-Dec	---	---	---	---	None	---	None
126: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
127: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
128: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
129: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
130: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
131: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
132: Royal-----	B	Jan-Dec	---	---	---	---	None	---	None
Timmerman-----	B	Jan-Dec	---	---	---	---	None	---	None
133: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
134: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
135: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
136: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
137: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
138: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
139: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
140: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
141: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
142: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick, gravelly substratum-----	B	Jan-Dec	---	---	---	---	None	---	None
143: Sagehill-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
144: Sagemoor-----	B	Jan-Dec	---	---	---	---	None	---	None
145: Sagemoor-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
146: Sagemoor-----	B	Jan-Dec	---	---	---	---	None	---	None
147: Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
148: Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
149: Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
150: Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
151: Schlomer-----	C	Jan-Dec	---	---	---	---	None	---	None
152: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
153: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
154: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
155: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
156: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
157: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
158: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
159: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
160: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
161: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
162: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
163: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
164: Shano-----	B	Jan-Dec	---	---	---	---	None	---	None
Kennewick-----	B	Jan-Dec	---	---	---	---	None	---	None
165: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
166: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
167: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
168: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Finley-----	B	Jan-Dec	---	---	---	---	None	---	None
169: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
170: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
170: Prosser-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
171: Starbuck-----	D	Jan-Dec	---	---	---	---	None	---	None
Roloff-----	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	D	Jan-Dec	---	---	---	---	None	---	None
172: Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
173: Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
174: Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
175: Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
176: Stratford-----	B	Jan-Dec	---	---	---	---	None	---	None
177: Tauncal-----	C	Jan-Dec	---	---	---	---	None	---	None
178: Tauncal-----	C	Jan-Dec	---	---	---	---	None	---	None
179: Tauncal-----	C	Jan-Dec	---	---	---	---	None	---	None
180: Tauncal-----	C	Jan-Dec	---	---	---	---	None	---	None
181: Taunton-----	C	Jan-Dec	---	---	---	---	None	---	None
182: Taunton-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
183: Timmerman-----	B	Jan-Dec	---	---	---	---	None	---	None
184: Timmerman-----	B	Jan-Dec	---	---	---	---	None	---	None
185: Timmerman-----	B	Jan-Dec	---	---	---	---	None	---	None
186: Urban land-----	D	---	---	---	---	---	---	---	---
Torripsamments-----	A	Jan-Dec	---	---	---	---	None	---	None
187: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
188: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
189: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
190: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
191: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
192: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
193: Wacota-----	B	Jan-Dec	---	---	---	---	None	---	None
194: Wacota-----	B	April May	---	---	---	---	None None	---	Rare Rare
Ritzcal-----	B	Jan-Dec	---	---	---	---	None	---	None
195: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			<i>Ft</i>	<i>Ft</i>	<i>Ft</i>				
196: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
197: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
198: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
199: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
200: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
201: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
202: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
203: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
204: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
205: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
206: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
207: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
208: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
209: Warden-----	B	Jan-Dec	---	---	---	---	None	---	None
210: Wiehl-----	C	Jan-Dec	---	---	---	---	None	---	None

Table 16.--Water Features--Continued

[illegible]

Table 17.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
1: Alderdale-----	Bedrock (lithic)	20-40	Indurated	Low	High	Low
2: Aguents-----	---	---	---	Moderate	High	Low
Halaquepts-----	---	---	---	High	High	Moderate
3: Badland-----	---	---	---	---	---	---
Xeric Torriorthents----	Bedrock (paralithic)	20-80	Moderately cemented	High	High	Low
4: Burbank-----	---	---	---	Low	High	Low
5: Burbank-----	---	---	---	Low	High	Low
6: Burbank-----	---	---	---	Low	High	Low
7: Burke-----	Duripan	20-40	Indurated	High	High	Low
8: Burke-----	Duripan	20-40	Indurated	High	High	Low
9: Burke-----	Duripan	20-40	Indurated	High	High	Low
10: Chedehap-----	Strongly contrasting textural stratification	26-40	Noncemented	Moderate	High	Low
11: Chedehap-----	Strongly contrasting textural stratification	26-40	Noncemented	Moderate	High	Low
12: Chedehap-----	Strongly contrasting textural stratification	26-40	Noncemented	Moderate	High	Low
13: Cleman-----	---	---	---	High	High	Low
14: Eltopia-----	Duripan	20-40	Weakly cemented	Moderate	High	Low
15: Eltopia-----	Duripan	20-40	Weakly cemented	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
16: Ephrata-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
17: Esquatzel-----	---	---	---	Moderate	High	Low
18: Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
19: Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
20: Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
21: Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
22: Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
23: Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
24: Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
25: Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
26: Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		<i>In</i>				
26: Burbank-----	---	---	---	Low	High	Low
Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
27: Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
28: Halaquepts-----	---	---	---	High	High	Low
29: Hezel-----	---	---	---	Low	High	Low
30: Hezel-----	---	---	---	Low	High	Low
31: Hezel-----	---	---	---	Low	High	Low
32: Hezel-----	Strongly contrasting textural stratification	40-60	Noncemented	Low	High	Low
33: Kahlotus-----	---	---	---	Moderate	High	Low
34: Kahlotus-----	---	---	---	Moderate	High	Low
35: Kahlotus-----	---	---	---	Moderate	High	Low
36: Kahlotus-----	---	---	---	Moderate	High	Low
37: Kahlotus-----	---	---	---	Moderate	High	Low
38: Kahlotus-----	---	---	---	Moderate	High	Low
39: Kahlotus-----	---	---	---	Moderate	High	Low
Kennewick-----	---	---	---	High	High	Low
40: Kahlotus-----	---	---	---	Moderate	High	Low
Kennewick-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
41: Kahlotus-----	---	---	---	Moderate	High	Low
Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
42: Kahlotus-----	---	---	---	Moderate	High	Low
Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
43: Kennewick-----	---	---	---	High	High	Low
44: Kennewick-----	---	---	---	High	High	Low
45: Kennewick-----	---	---	---	High	High	Low
46: Kennewick-----	---	---	---	High	High	Low
47: Kennewick-----	---	---	---	High	High	Low
48: Kiona-----	---	---	---	Moderate	High	Low
Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
49: Kiona-----	---	---	---	Moderate	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
50: Koehler-----	Duripan	20-40	Indurated	Moderate	High	Low
51: Koehler-----	Duripan	20-40	Indurated	Moderate	High	Low
52: Licksillet-----	Bedrock (lithic)	12-20	Indurated	Moderate	Moderate	Low
Bakeoven-----	Bedrock (lithic)	4-10	Indurated	Moderate	Moderate	Low
53: Magallon-----	Strongly contrasting textural stratification	14-25	Noncemented	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
53: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
54: Magallon-----	Strongly contrasting textural stratification	14-25	Noncemented	Moderate	High	Low
Winchester-----	---	---	---	Low	High	Low
Farrell-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
55: Malaga-----	Strongly contrasting textural stratification	14-25	Noncemented	Low	Moderate	Low
56: Nansene-----	---	---	---	High	High	Low
Ritzville-----	---	---	---	High	High	Low
57: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
58: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
59: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
60: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
61: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
62: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
63: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
64: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
65: Neppel-----	Strongly contrasting textural stratification	24-40	Noncemented	High	High	Low
Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
66: Novark-----	Strongly contrasting textural stratification	20-40	Noncemented	High	High	Low
67: Ottmar-----	Bedrock (paralithic)	40-60	Moderately cemented	Moderate	High	Low
68: Ottmar-----	Bedrock (paralithic)	40-60	Moderately cemented	Moderate	High	Low
69: Ottmar-----	Bedrock (paralithic)	40-60	Moderately cemented	Moderate	High	Low
70: Ottmar-----	---	---	---	High	High	Low
71: Ottmar-----	---	---	---	High	High	Low
72: Ottmar-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		<i>In</i>				
73: Ottmar-----	---	---	---	High	High	Low
74: Ottmar-----	---	---	---	High	High	Low
75: Ottmar-----	Bedrock (paralithic)	40-60	Moderately cemented	Moderate	High	Low
Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
76: Pits-----	---	---	---	---	---	---
77: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
78: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
79: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
80: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
81: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
82: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
83: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
84: Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
85: Quincy-----	---	---	---	Low	High	Low
86: Quincy-----	---	---	---	Low	High	Low
87: Quincy-----	---	---	---	Low	High	Low
88: Quincy-----	---	---	---	Low	High	Low
89: Quincy-----	---	---	---	Low	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
90: Quincy-----	---	---	---	Low	High	Low
91: Quincy-----	---	---	---	Low	High	Low
92: Quincy-----	Abrupt textural change	40-60	Noncemented	Low	High	Low
93: Quincy-----	Abrupt textural change	40-60	Noncemented	Low	High	Low
94: Quincy-----	Abrupt textural change	40-60	Noncemented	Low	High	Low
95: Quincy, cemented substratum-----	Duripan	40-60	Indurated	Low	High	Low
Quincy, very gravelly substratum-----	Strongly contrasting textural stratification	40-60	Noncemented	Low	High	Low
96: Quincy-----	---	---	---	Low	High	Low
Dune land-----	---	---	---	---	---	---
97: Quincy-----	---	---	---	Low	High	Low
Hezel-----	---	---	---	Low	High	Low
98: Quincy-----	---	---	---	Low	High	Low
Hezel-----	---	---	---	Low	High	Low
99: Quincy-----	---	---	---	Low	High	Low
Hezel-----	---	---	---	Low	High	Low
100: Quincy-----	---	---	---	Low	High	Low
Hezel-----	---	---	---	Low	High	Low
Warden-----	---	---	---	High	High	Low
101: Quincy-----	---	---	---	Low	High	Low
Quinton-----	Bedrock (lithic)	20-40	Indurated	Low	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		<i>In</i>				
102: Quincy-----	---	---	---	Low	High	Low
Timmerman-----	Strongly contrasting textural stratification	13-30	Noncemented	Moderate	High	Low
103: Quincy-----	---	---	---	Low	High	Low
Wanser-----	---	---	---	Moderate	High	Low
104: Rinquin-----	Bedrock (paralithic)	20-40	Moderately cemented	Low	High	Low
105: Ritzcal-----	---	---	---	High	High	Low
Ritzville-----	---	---	---	High	High	Low
106: Ritzcal-----	---	---	---	High	High	Low
Ritzville-----	---	---	---	High	High	Low
107: Ritzville-----	---	---	---	High	High	Low
108: Ritzville-----	---	---	---	High	High	Low
109: Ritzville-----	---	---	---	High	High	Low
110: Ritzville-----	---	---	---	High	High	Low
111: Ritzville-----	---	---	---	High	High	Low
112: Ritzville-----	---	---	---	High	High	Low
113: Ritzville-----	---	---	---	High	High	Low
114: Ritzville-----	---	---	---	High	High	Low
115: Ritzville-----	---	---	---	High	High	Low
116: Ritzville-----	---	---	---	High	High	Low
117: Ritzville-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
118: Ritzville-----	---	---	---	High	High	Low
Nansene-----	---	---	---	High	High	Low
119: Riverwash-----	---	---	---	---	---	---
120: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
121: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
122: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
123: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Lickskillet-----	Bedrock (lithic)	12-20	Indurated	Moderate	Moderate	Low
Rock outcrop-----	---	---	---	---	---	---
124: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
125: Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
Rubble land-----	Bedrock (lithic)	40-60	Indurated	---	---	---
126: Royal-----	---	---	---	High	High	Low
127: Royal-----	---	---	---	High	High	Low
128: Royal-----	---	---	---	High	High	Low
129: Royal-----	---	---	---	High	High	Low
130: Royal-----	---	---	---	High	High	Low
131: Royal-----	---	---	---	High	High	Low
132: Royal-----	---	---	---	High	High	Low
Timmerman-----	Strongly contrasting textural stratification	13-30	Noncemented	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		<i>In</i>				
133: Sagehill-----	---	---	---	High	High	Low
134: Sagehill-----	---	---	---	High	High	Low
135: Sagehill-----	---	---	---	High	High	Low
136: Sagehill-----	---	---	---	High	High	Low
137: Sagehill-----	---	---	---	High	High	Low
138: Sagehill-----	Duripan	40-60	Indurated	Moderate	High	Low
139: Sagehill-----	Duripan	40-60	Indurated	Moderate	High	Low
140: Sagehill-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
141: Sagehill-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
142: Sagehill-----	Strongly contrasting textural stratification	40-60	Noncemented	Moderate	High	Low
Kennewick, gravelly substratum-----	Strongly contrasting textural stratification	40-60	Noncemented	High	High	Low
143: Sagehill-----	---	---	---	High	High	Low
Kennewick-----	---	---	---	High	High	Low
Shano-----	---	---	---	High	High	Low
144: Sagemoor-----	---	---	---	High	High	Low
145: Sagemoor-----	---	---	---	High	High	Low
146: Sagemoor-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
147: Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
148: Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
149: Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
150: Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
151: Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
152: Shano-----	---	---	---	High	High	Low
153: Shano-----	---	---	---	High	High	Low
154: Shano-----	---	---	---	High	High	Low
155: Shano-----	---	---	---	High	High	Low
156: Shano-----	---	---	---	High	High	Low
157: Shano-----	---	---	---	High	High	Low
158: Shano-----	---	---	---	High	High	Low
159: Shano-----	---	---	---	High	High	Low
160: Shano-----	---	---	---	High	High	Low
161: Shano-----	---	---	---	High	High	Low
162: Shano-----	---	---	---	High	High	Low
163: Shano-----	---	---	---	High	High	Low
Kennewick-----	---	---	---	High	High	Low
164: Shano-----	---	---	---	High	High	Low
Kennewick-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
165: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
166: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
167: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
168: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Finley-----	Strongly contrasting textural stratification	20-40	Noncemented	Moderate	High	Low
169: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
170: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Prosser-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
171: Starbuck-----	Bedrock (lithic)	12-20	Indurated	High	Moderate	Low
Roloff-----	Bedrock (lithic)	20-40	Indurated	High	High	Low
Rock outcrop-----	Bedrock (lithic)	0-0	Indurated	---	---	---
172: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
173: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
174: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
175: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
176: Stratford-----	Strongly contrasting textural stratification	20-36	Noncemented	Moderate	High	Low
177: Tauncal-----	Duripan	20-40	Indurated	High	High	Low
178: Tauncal-----	Duripan	20-40	Indurated	High	High	Low
179: Tauncal-----	Duripan	20-40	Indurated	High	High	Low
180: Tauncal-----	Duripan	20-40	Indurated	High	High	Low
181: Taunton-----	Duripan	20-40	Indurated	Moderate	High	Low
182: Taunton-----	Duripan	20-40	Indurated	Moderate	High	Low
183: Timmerman-----	Strongly contrasting textural stratification	13-30	Noncemented	Moderate	High	Low
184: Timmerman-----	Strongly contrasting textural stratification	13-30	Noncemented	Moderate	High	Low
185: Timmerman-----	Strongly contrasting textural stratification	13-30	Noncemented	Moderate	High	Low
186: Urban land-----	---	---	---	---	---	---
Torripsamments-----	---	---	---	Low	High	Low
187: Wacota-----	---	---	---	High	High	Low
188: Wacota-----	---	---	---	High	High	Low
189: Wacota-----	---	---	---	High	High	Low

Table 17.--Soil Features--Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		<i>In</i>				
190: Wacota-----	---	---	---	High	High	Low
191: Wacota-----	---	---	---	High	High	Low
192: Wacota-----	---	---	---	High	High	Low
193: Wacota-----	---	---	---	High	High	Low
194: Wacota-----	---	---	---	High	High	Low
Ritzcal-----	---	---	---	High	High	Low
195: Warden-----	---	---	---	High	High	Low
196: Warden-----	---	---	---	High	High	Low
197: Warden-----	---	---	---	High	High	Low
198: Warden-----	---	---	---	High	High	Low
199: Warden-----	---	---	---	High	High	Low
200: Warden-----	---	---	---	High	High	Low
201: Warden-----	---	---	---	High	High	Low
202: Warden-----	---	---	---	High	High	Low
203: Warden-----	---	---	---	High	High	Low
204: Warden-----	---	---	---	High	High	Low
205: Warden-----	---	---	---	High	High	Low
206: Warden-----	---	---	---	High	High	Low
207: Warden-----	Duripan	40-60	Indurated	High	High	Low
208: Warden-----	Duripan	40-60	Indurated	High	High	Low
209: Warden-----	Duripan	40-60	Indurated	High	High	Low

Table 17.--Soil Features--Continued

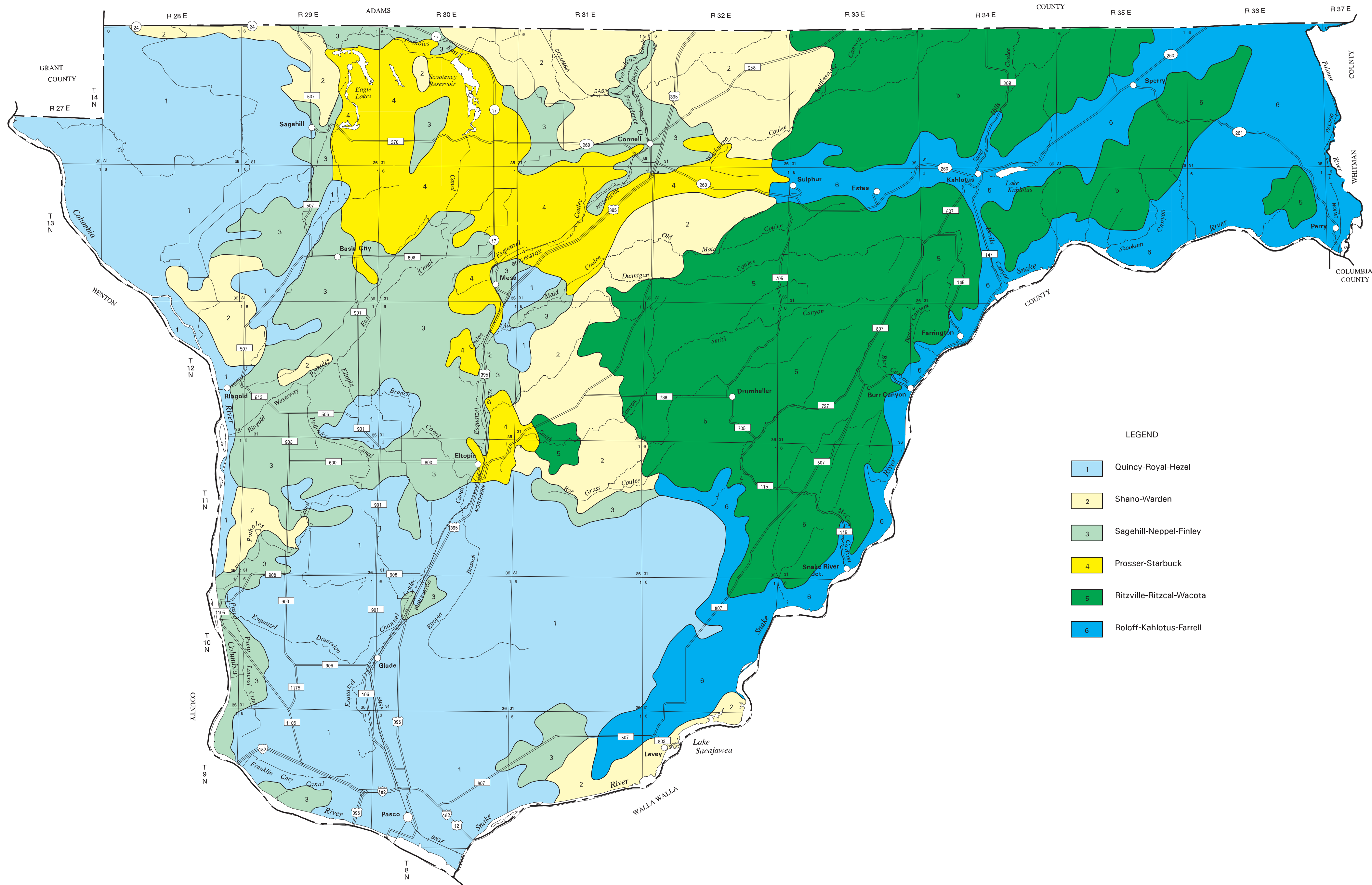
Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
210: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
211: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
212: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
213: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
214: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
215: Wiehl-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
Schlomer-----	Bedrock (paralithic)	20-40	Moderately cemented	High	High	Low
216: Willis-----	Duripan	20-40	Indurated	High	High	Low
217: Winchester-----	---	---	---	Low	High	Low
218: Winchester-----	---	---	---	Low	High	Low
219: Xeric Torriorthents----	Bedrock (paralithic)	20-80	Moderately cemented	High	High	Low
220: Water-----	---	---	---	---	---	---
221: Dam-----	---	---	---	---	---	---

Table 18.--Taxonomic Classification of the Soils

Soil name	Family or higher taxonomic class
Alderdale-----	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Aquents-----	Aquents
Bakeoven-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Burbank-----	Sandy-skeletal, mixed, mesic Xeric Torriorthents
Burke-----	Coarse-silty, mixed, mesic Xeric Haplodurids
Chedehap-----	Coarse-loamy, mixed, mesic Xeric Haplocambids
Cleman-----	Coarse-loamy, mixed, mesic Torrifluventic Haploxerolls
Eltopia-----	Coarse-loamy, mixed, mesic Xerochreptic Haplodurids
Ephrata-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Esquatzel-----	Coarse-silty, mixed, superactive, mesic Torrifluventic Haploxerolls
Farrell-----	Coarse-loamy, mixed, superactive, mesic Calcic Haploxerolls
Finley-----	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Halaquepts-----	Halaquepts
Hezel-----	Sandy over loamy, mixed, superactive, nonacid, mesic Xeric Torriorthents
Kahlotus-----	Coarse-silty, mixed, superactive, mesic Aridic Haploxerolls
Kennewick-----	Coarse-silty, mixed (calcareous), mesic Xeric Torriorthents
Kiona-----	Loamy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Koehler-----	Sandy, mixed, mesic Xeric Haplodurids
Lickskillet-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haploxerolls
Magallon-----	Sandy, mixed, mesic Aridic Haploxerolls
Malaga-----	Sandy-skeletal, mixed, superactive, mesic Xeric Haplocambids
Nansene-----	Coarse-silty, mixed, superactive, mesic Pachic Haploxerolls
Neppel-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Durinodic Xeric Haplocambids
Novark-----	Coarse-silty over sandy or sandy-skeletal, mixed, mesic Xeric Haplocalcids
Ottmar-----	Fine-silty, mixed, mesic Xeric Haplocambids
Prosser-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplocambids
Quincy-----	Mixed, mesic Xeric Torripsamments
Quinton-----	Mixed, mesic Xeric Torripsamments
Rinquin-----	Mixed, mesic Xeric Torripsamments
Ritzcal-----	Coarse-silty, mixed (calcareous), mesic Xeric Torriorthents
Ritzville-----	Coarse-silty, mixed, superactive, mesic Calcic Haploxerolls
Roloff-----	Coarse-loamy, mixed, mesic Aridic Haploxerolls
Royal-----	Coarse-loamy, mixed, mesic Xeric Haplocambids
Sagehill-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplocalcids
Sagemoor-----	Coarse-silty, mixed, mesic Xeric Haplocambids
Schlomer-----	Fine-silty, mixed, mesic Xeric Haplocambids
Shano-----	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Starbuck-----	Loamy, mixed, superactive, mesic Lithic Xeric Haplocambids
Stratford-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, mesic Calcic Haploxerolls
Tauncal-----	Coarse-loamy, mixed, mesic Xeric Haplodurids
Taunton-----	Coarse-loamy, mixed, superactive, mesic Xeric Haplodurids
Timmerman-----	Sandy, mixed, mesic Xeric Haplocambids
Torripsamments-----	Torripsamments
Wacota-----	Ashy over loamy, mixed, mesic Vitrixerandic Haplocambids
Wanser-----	Mixed, mesic Typic Psammaquents
Warden-----	Coarse-silty, mixed, superactive, mesic Xeric Haplocambids
Wiehl-----	Coarse-loamy, mixed, mesic Xeric Haplocambids
Willis-----	Coarse-silty, mixed, superactive, mesic Haploduridic Durixerolls
Winchester-----	Mixed, mesic Xeric Torripsamments
Xeric Torriorthents-----	Xeric Torriorthents

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- LEGEND
- 1 Quincy-Royal-Hezel
 - 2 Shano-Warden
 - 3 Sagehill-Neppel-Finley
 - 4 Prosser-Starbuck
 - 5 Ritzville-Ritzcal-Wacota
 - 6 Roloff-Kahlotus-Farrell

SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
WASHINGTON STATE UNIVERSITY, AGRICULTURAL RESEARCH CENTER

GENERAL SOIL MAP
FRANKLIN COUNTY, WASHINGTON

1 0 1 2 3
MILES

1 0 1 2 3 4 5
KILOMETERS

SCALE = 1:175000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



SECTIONALIZED
TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36



INDEX TO MAP SHEETS
FRANKLIN COUNTY, WASHINGTON

1 0 1 2 3
MILES

1 0 1 2 3 4 5
KILOMETERS

SCALE = 1:175000

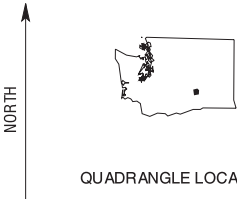
SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS 16

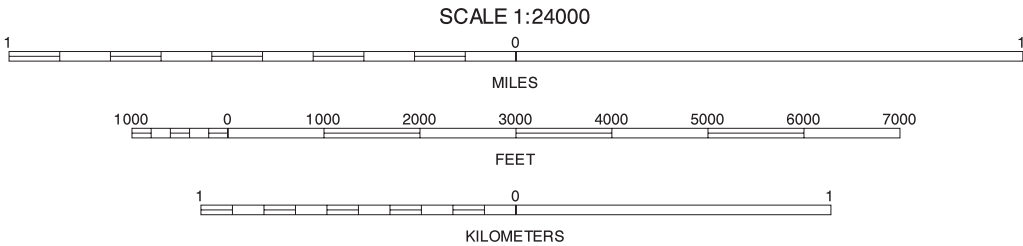


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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

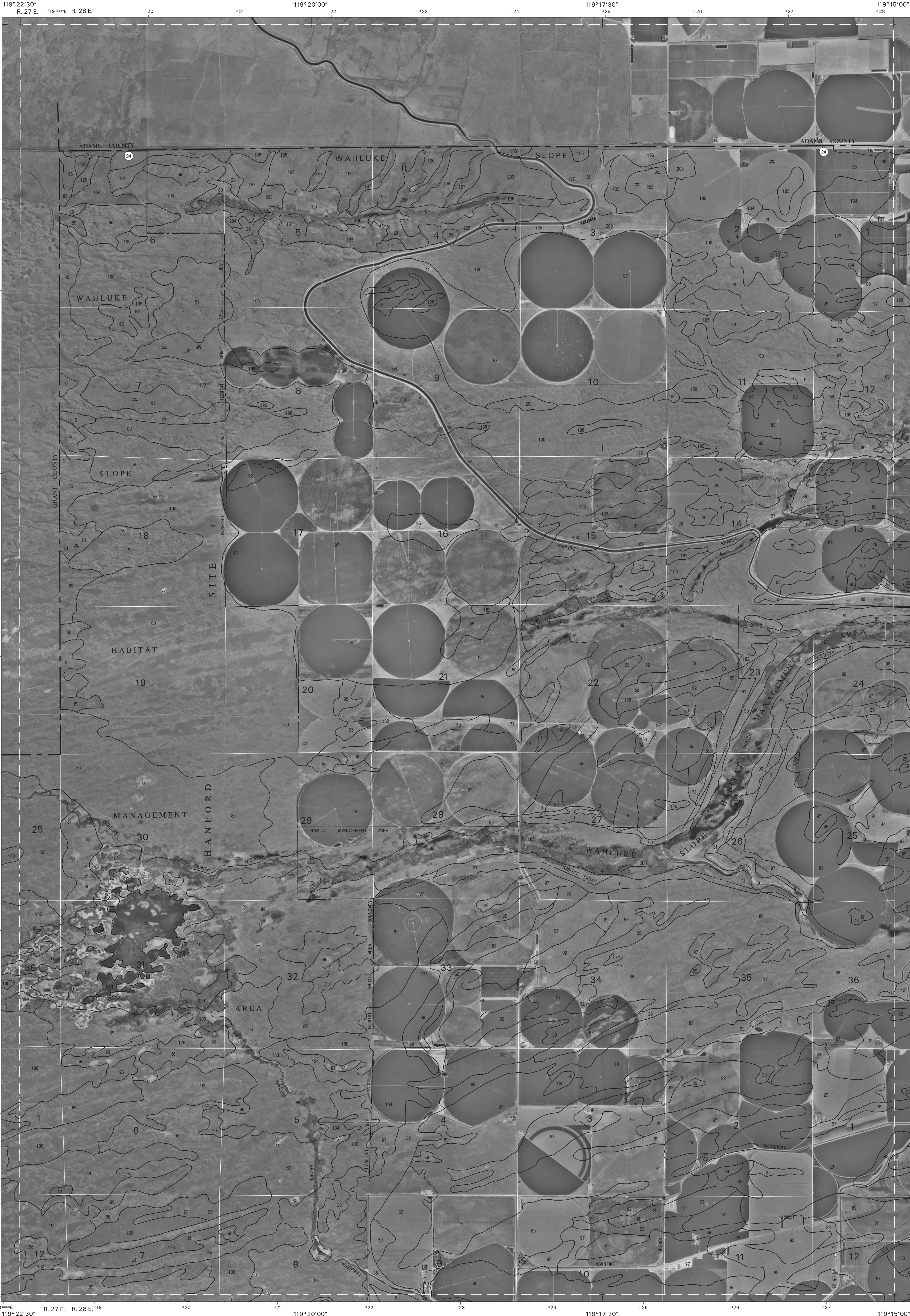


1	2
12	13

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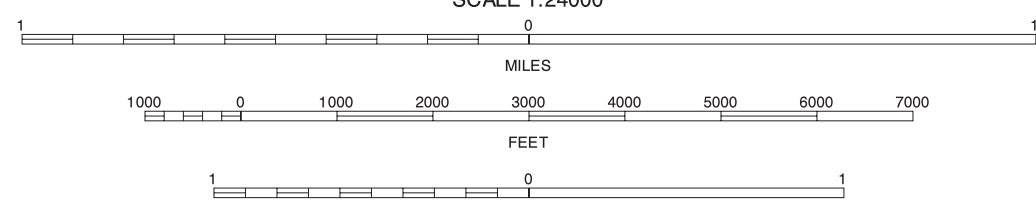
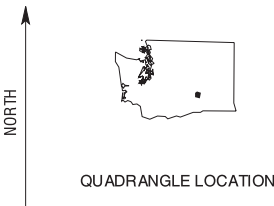
LOCKE ISLAND, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 38

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

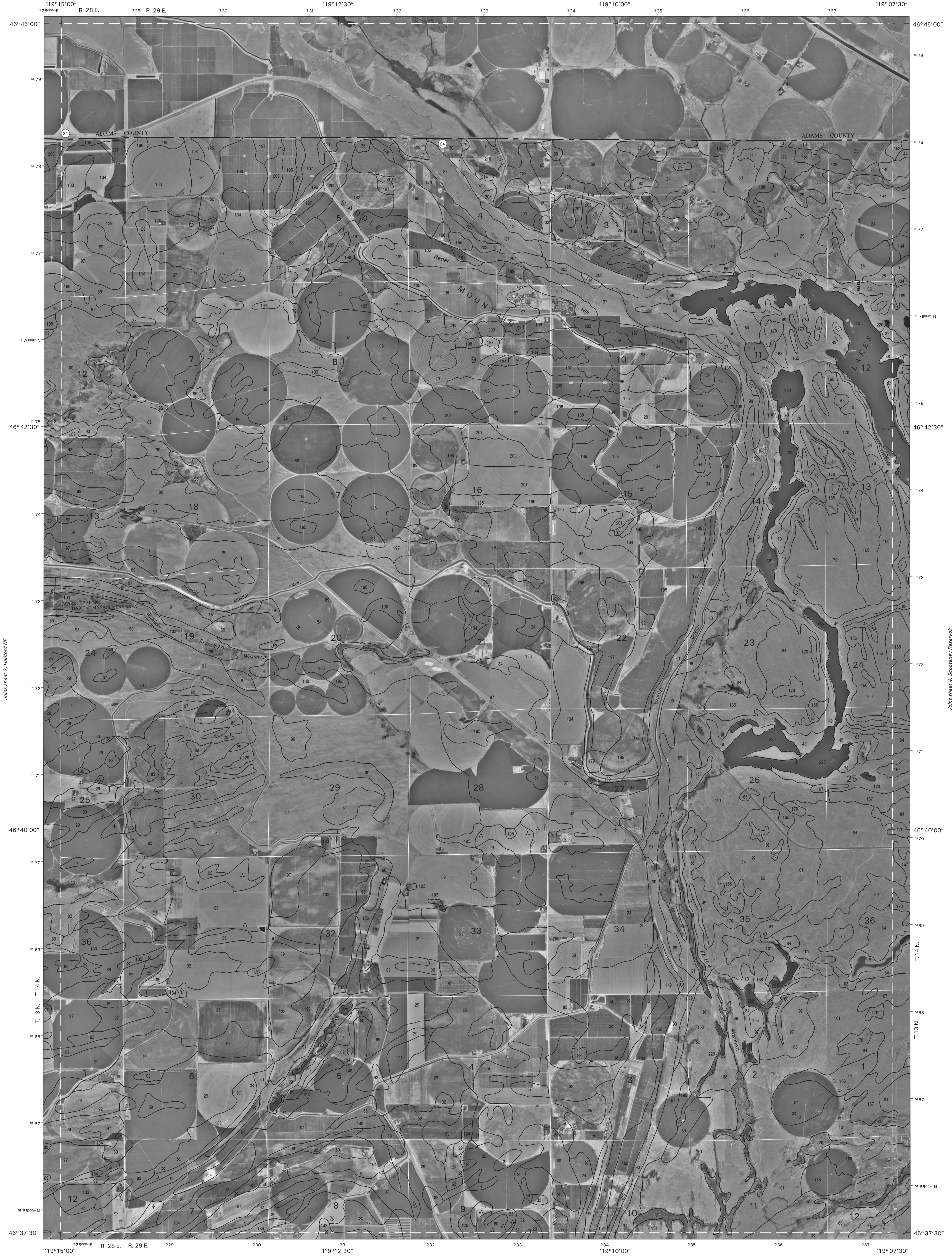


1	2	3
12	13	14

INDEX TO ADJOINING 7.5 MINUTE MAPS

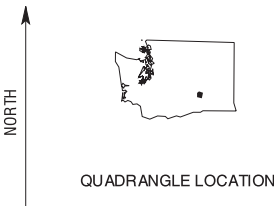
HANFORD NE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 38

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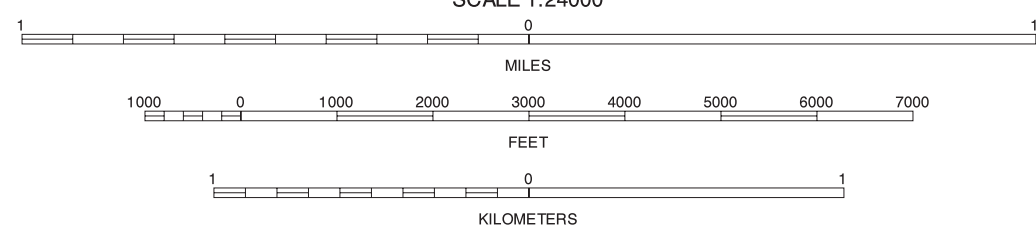


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



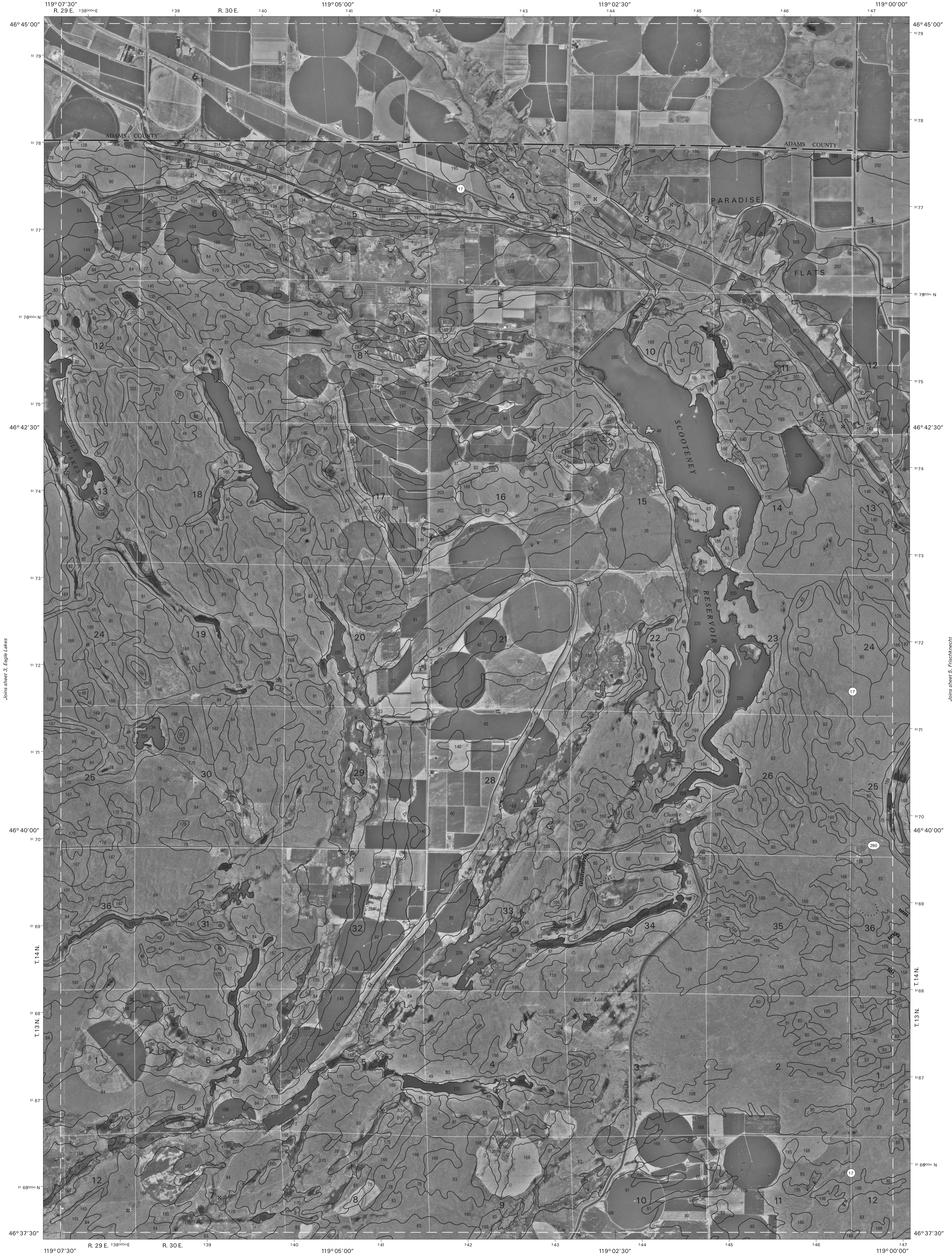
2	4
13	15

2 HANFORD NE
4 SCOOTENEY RESERVOIR
13 SAVAGE ISLAND
14 BASIN CITY
15 MESA WEST

INDEX TO ADJOINING 7.5 MAPS

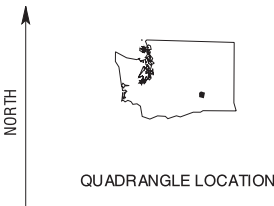
EAGLE LAKES, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 38

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

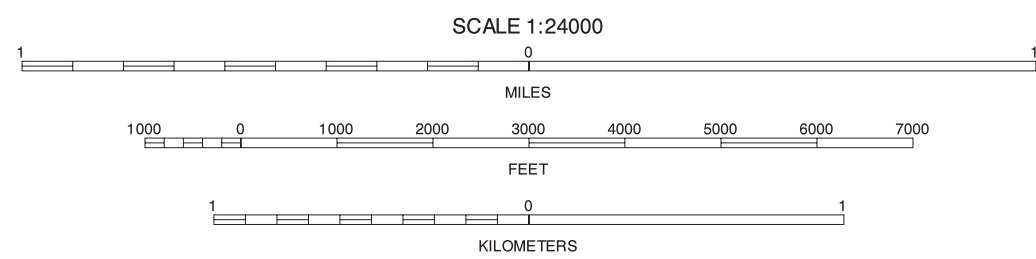


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

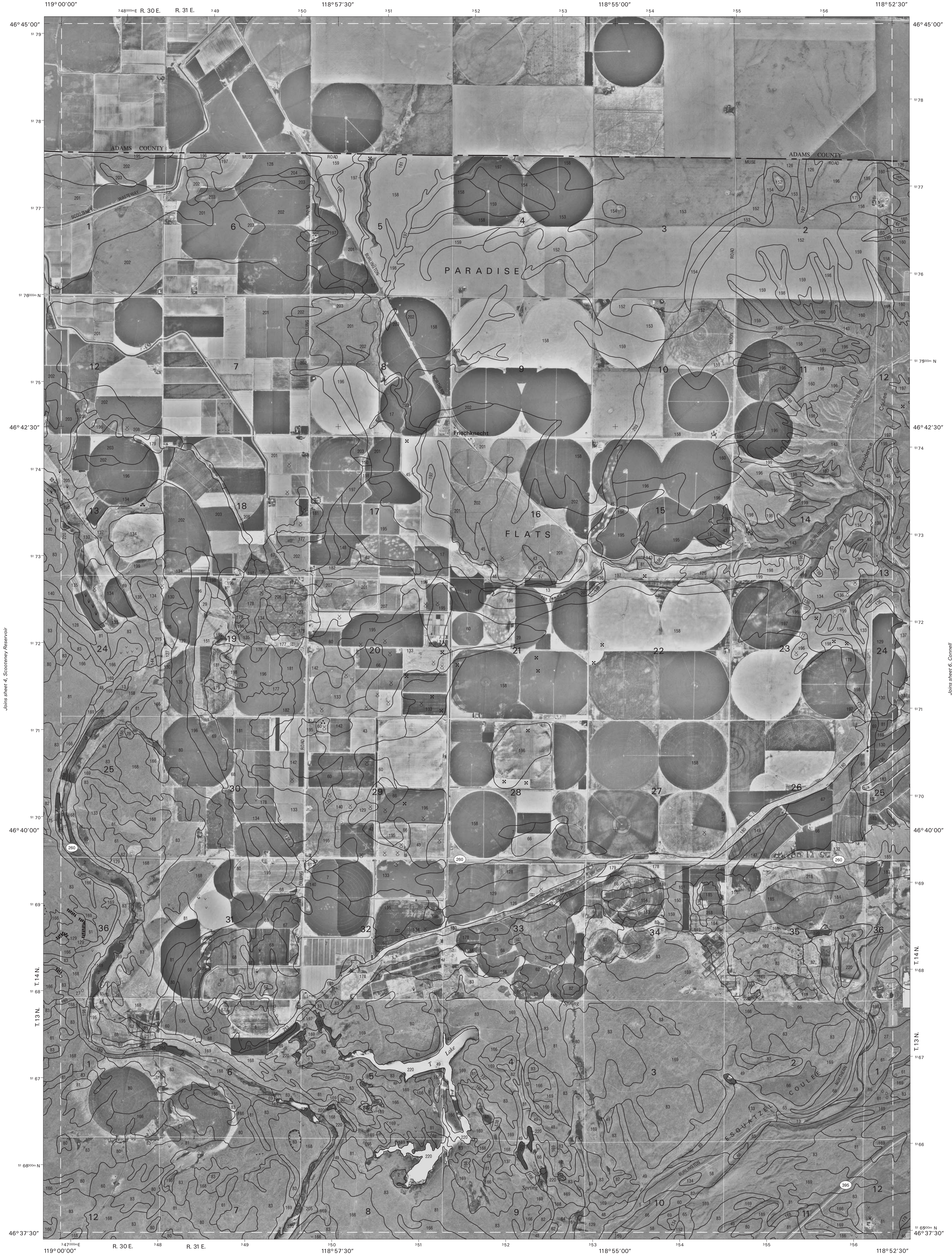


3	5
14	15
16	18

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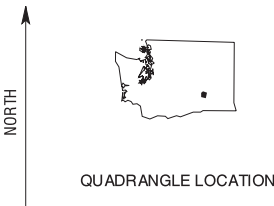
SCOOTENEY RESERVOIR, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 38

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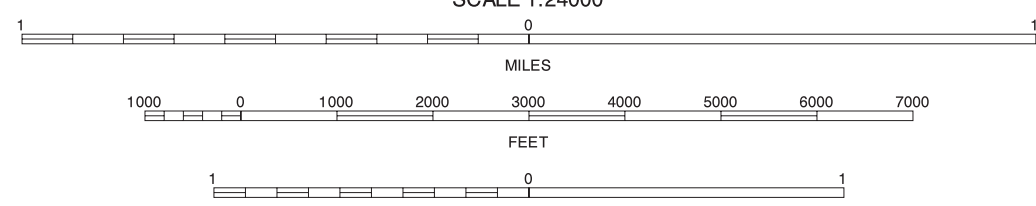


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



4	6
15	17

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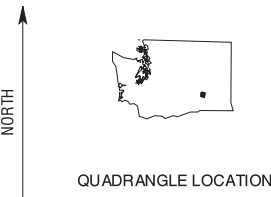
FRISCHKNECHT, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 38

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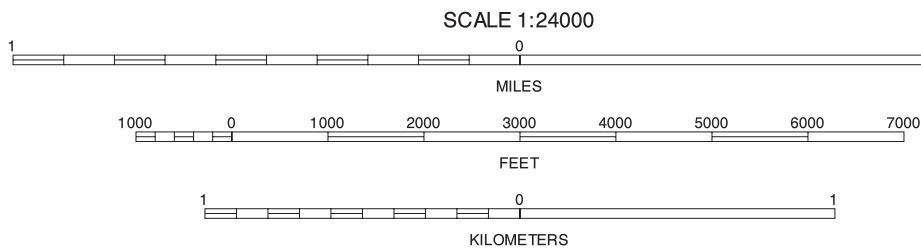


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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



Joins sheet 17, Connell SE

5	7
16	17
18	18

5 FRISCHKNECHT
7 SULPHUR LAKE
16 MESA EAST
17 CONNELL SE
18 BURR CANYON

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CONNELL, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 6 OF 38

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

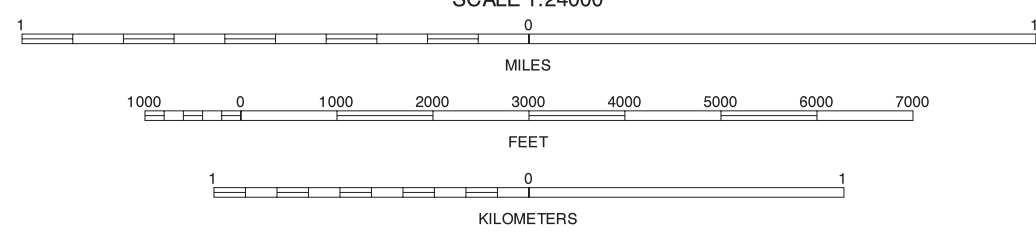


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

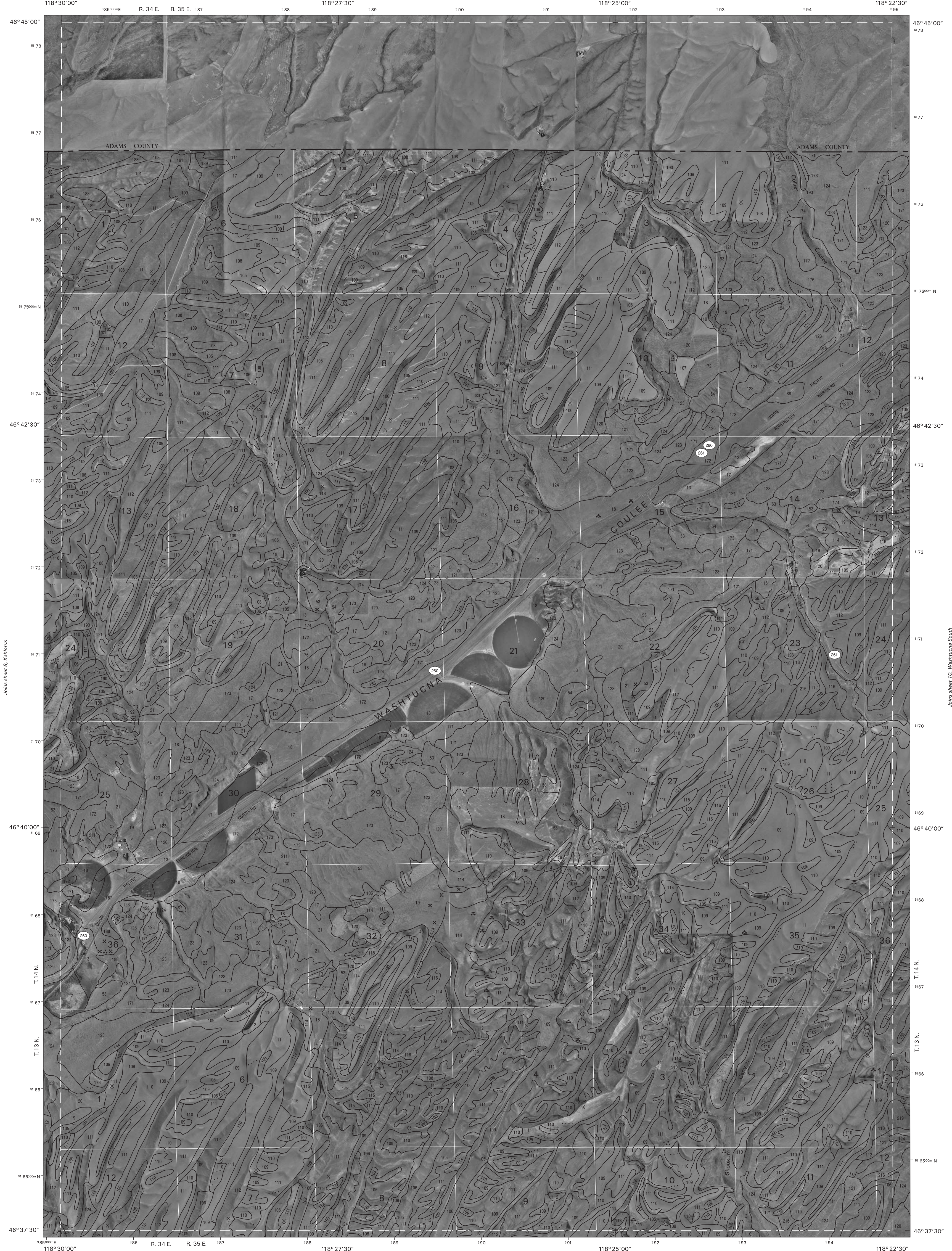


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17	18
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SULPHUR LAKE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 7 OF 38

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

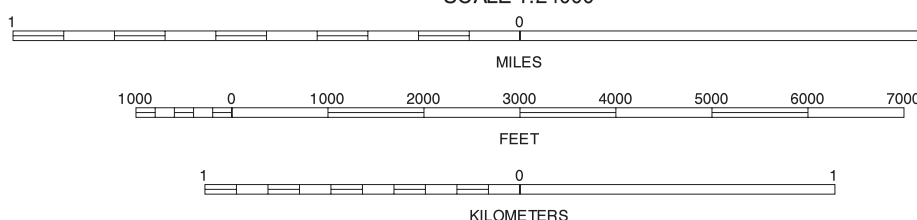


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1996 aerial photography. Cultural layers were derived from the USGS. The public land survey and administrative boundaries were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



8	10
19	21

8 KAHLLOTUS
10 WASHTUCNA SOUTH
19 LOWER MONUMENTAL DAM
20 MONUMENTAL ROCK
21 AYER

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SPERRY, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 38

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

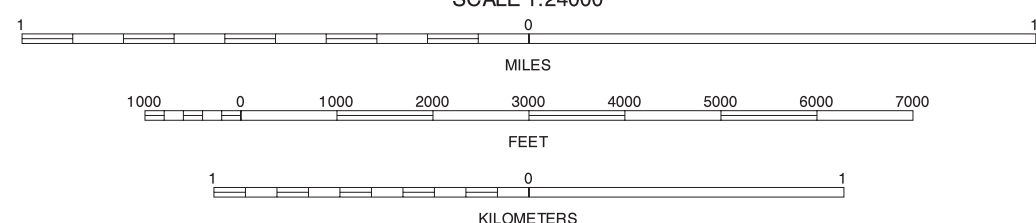


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



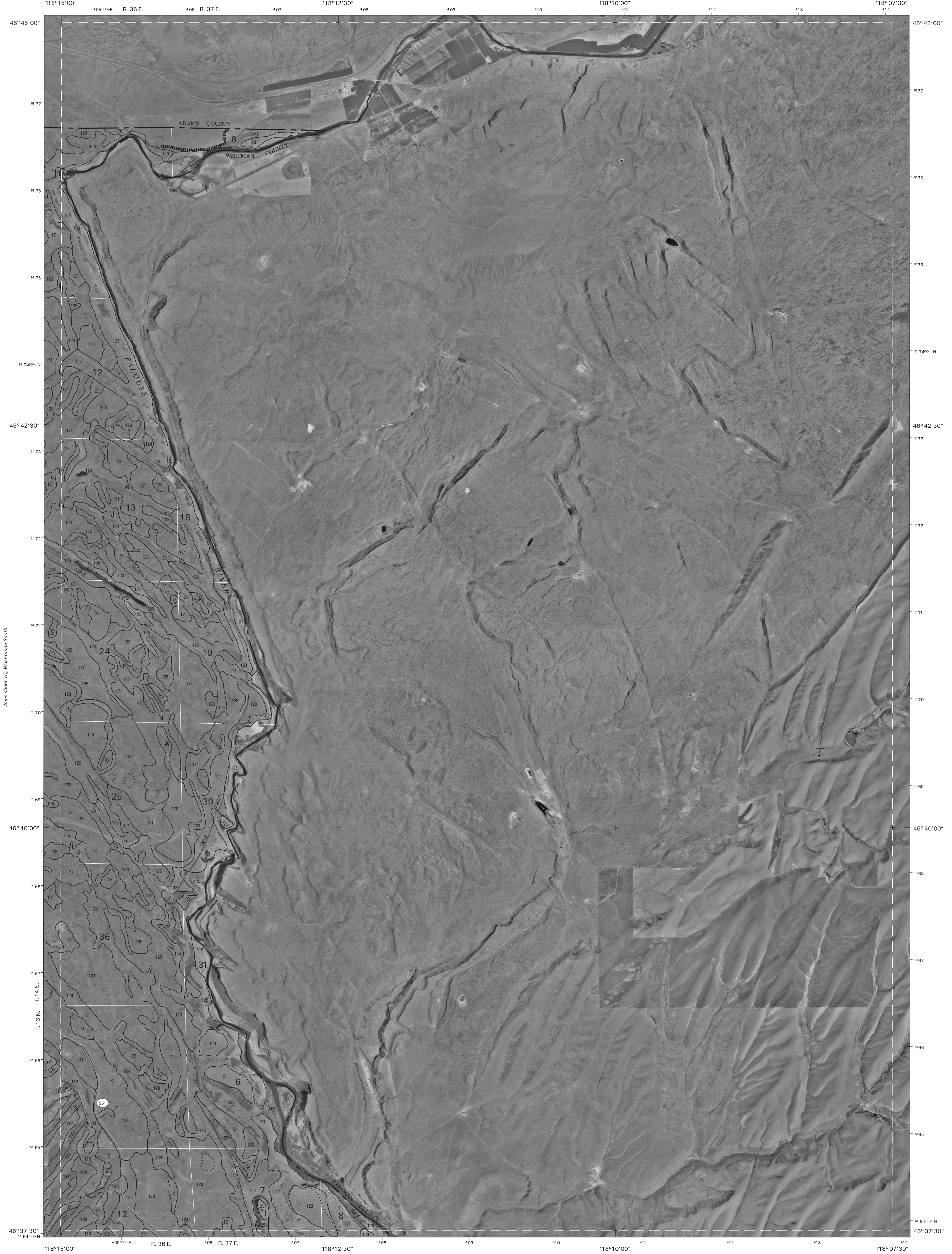
9	11
20	22

- 9 SPERRY
- 11 PALOUSE FALLS
- 20 MONUMENTAL ROCK
- 21 AYER
- 22 STARBUCK WEST

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WASHTUCNA SOUTH, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 10 OF 38

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.

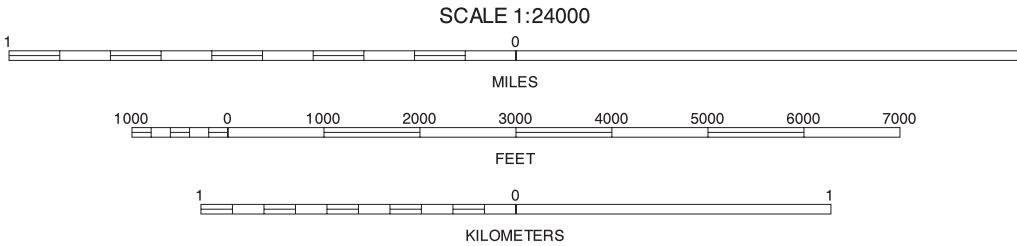


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



10	21	22
10 WASHTUCNA SOUTH	21 AYER	22 STARBUCK WEST

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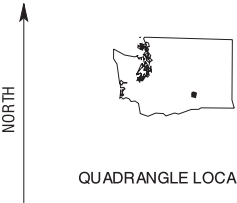
PALOUSE FALLS, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 38

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

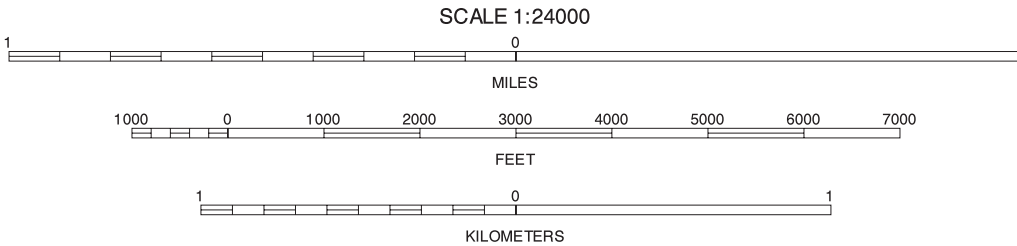


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QUADRANGLE LOCATION



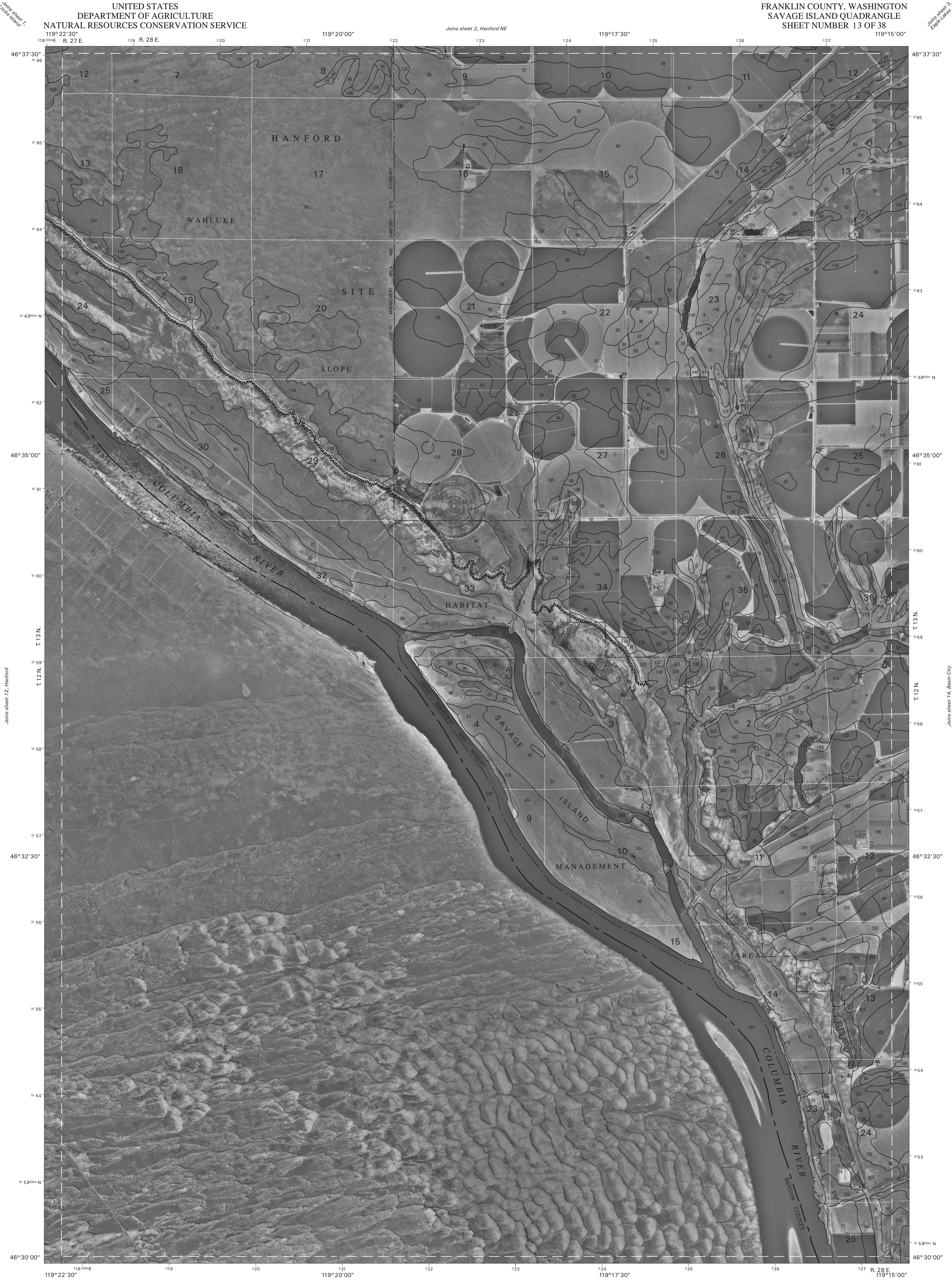
	1	2	1 LOCKE ISLAND
			2 HANFORD NE
		13	13 SAVAGE ISLAND
		23	23 WOODED ISLAND

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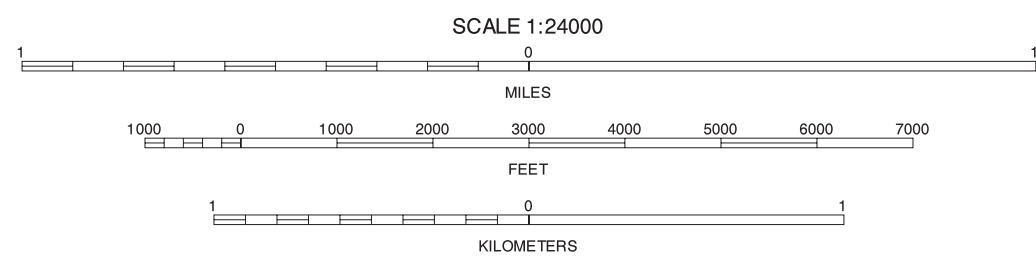
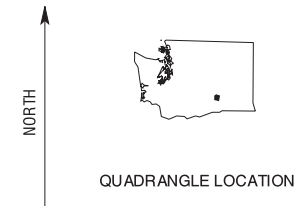
HANFORD, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

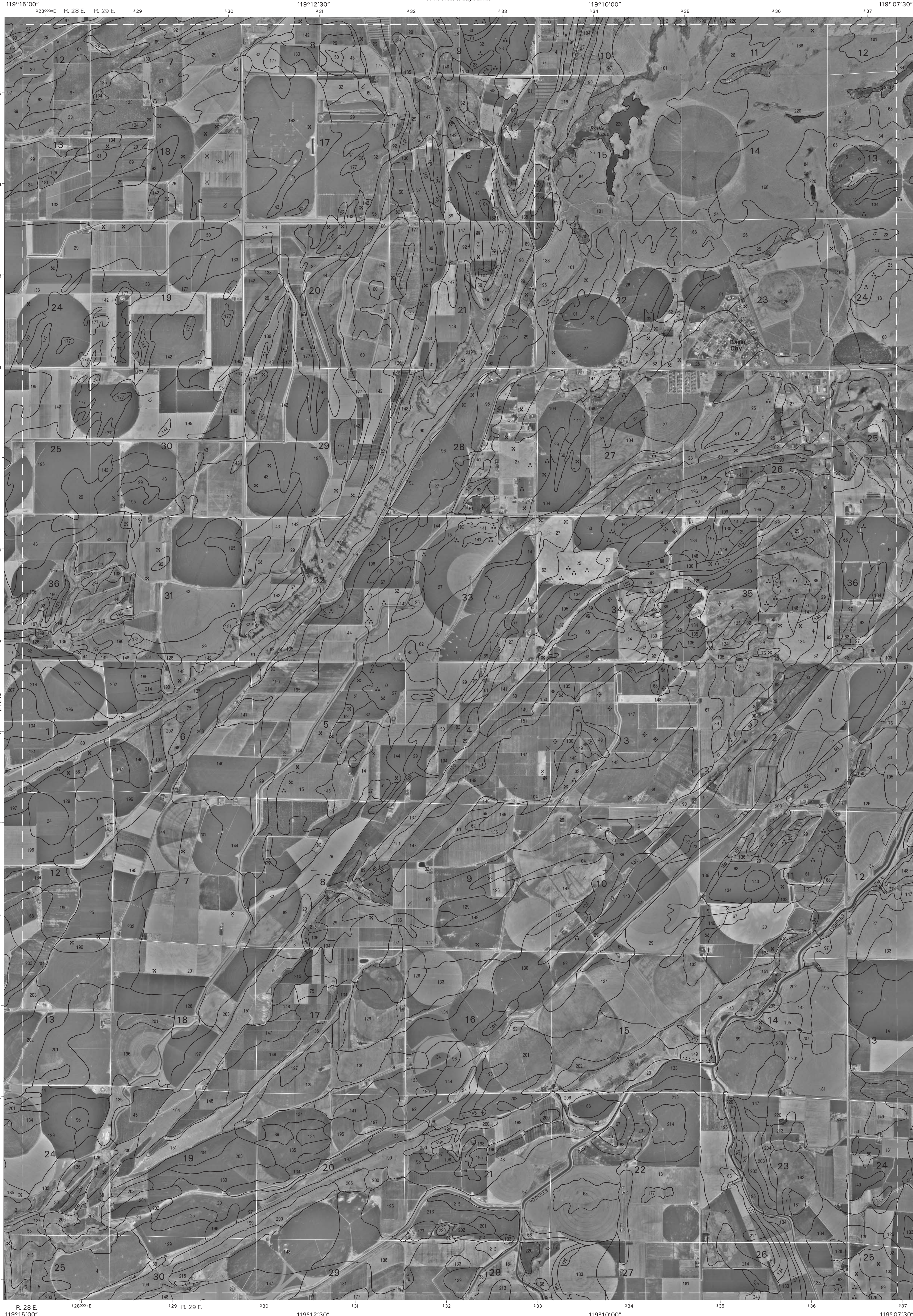


1	2	3
12	14	
	23	24

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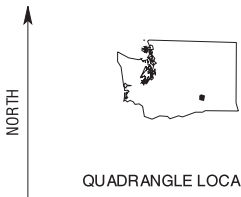
SAVAGE ISLAND, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 38

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

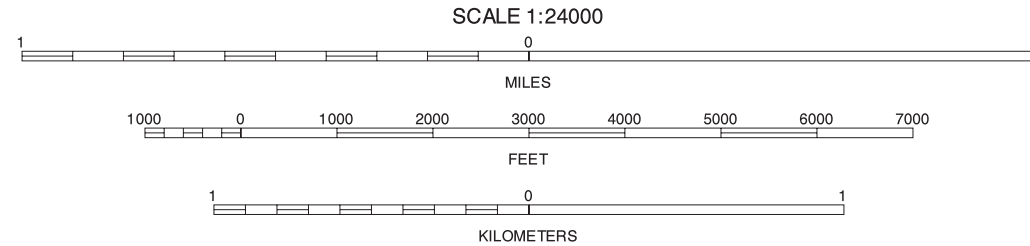


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



2	3	4
13	15	
23	24	25

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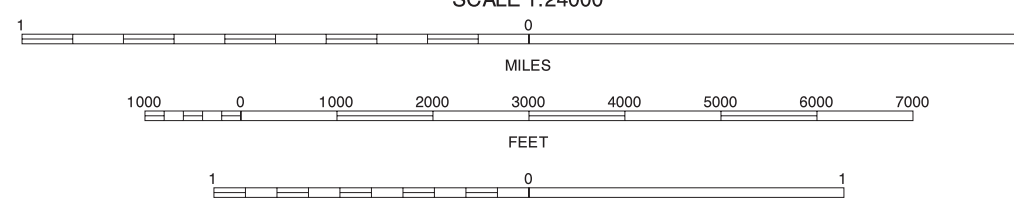
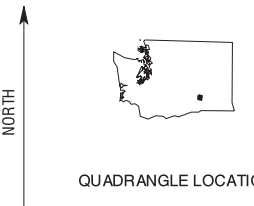
BASIN CITY, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 14 OF 38

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



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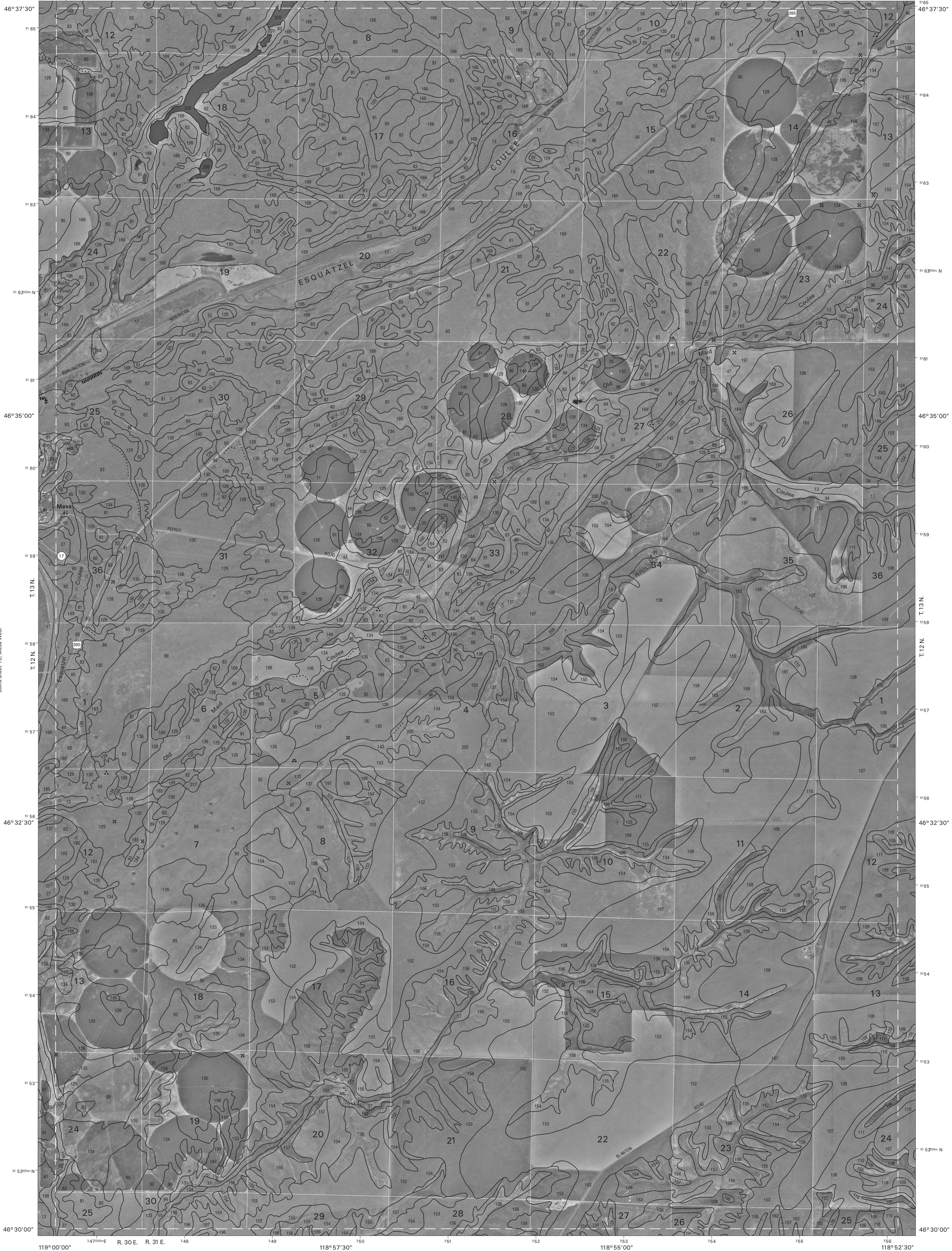
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



3	4	5
14	15	16
24	25	26

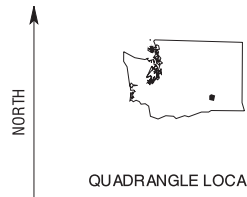
MESA WEST, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 38

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

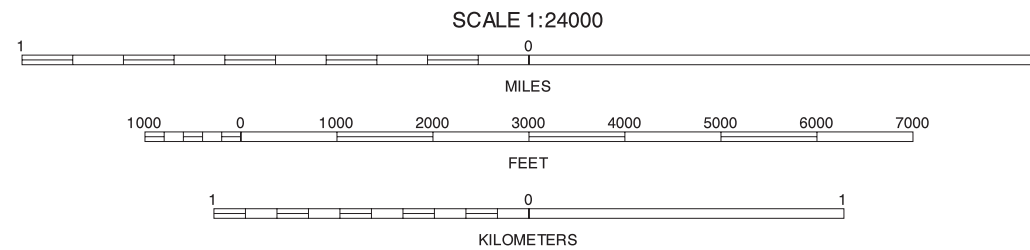


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



4	5	6	4 SCOOTENEY RESERVOIR
			5 FRISCHKNECHT
15		17	6 CONNELL
			15 MESA WEST
			17 CONNELL SE
			25 ELTOPIA
25	26	27	26 RYE GRASS COULEE
			27 LEVEYNE

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MESA EAST, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.

Joins sheet 5,
Fruchteneck

Joins sheet 7,
Sulphur Lake

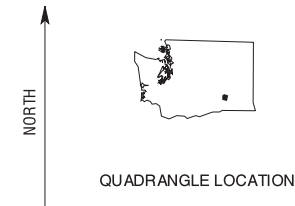


Joins sheet 26,
Rye Grass Coulee

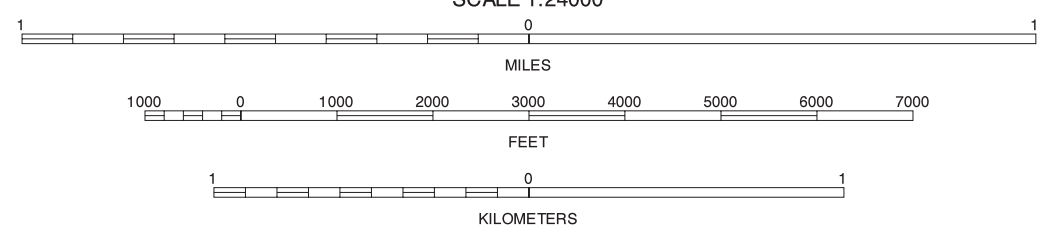
Joins sheet 28,
Snake River

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



5	6	7	5 FRISCHKNECHT
16	17	18	6 CONNELL
26	27	28	7 SULPHUR LAKE
			16 MESA EAST
			18 BURR CANYON
			26 RYE GRASS COULEE
			27 LEVEE NE
			28 SNAKE RIVER

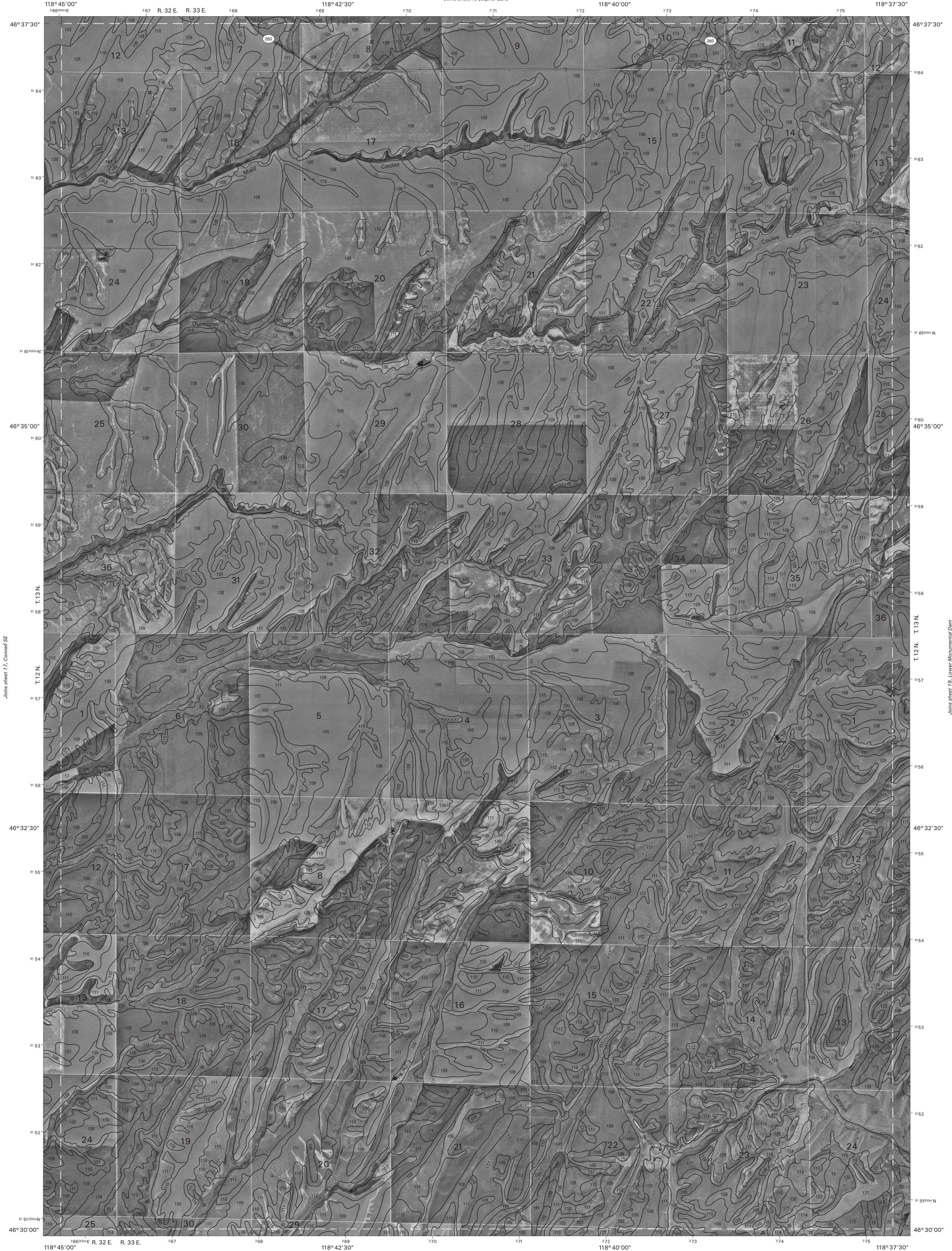
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CONNELL SE, WASHINGTON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

Joins sheet 6,
Counsell

Joins sheet 8,
Kahlotus



Joins sheet 17, Connell SE

Joins sheet 19, Lower Monumental Dam

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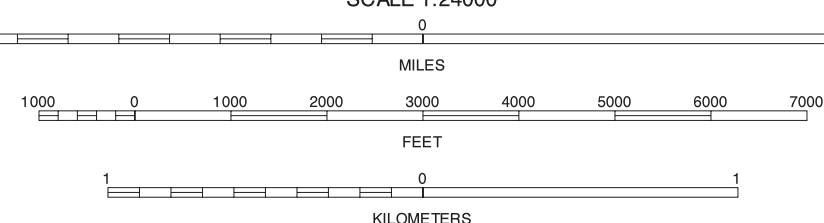
North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000



6	7	8	6 CORNELL 7 SULPHUR LAKE 8 KAHLOTUS
17	18	19	17 CONNELL SE 18 LOWER MONUMENTAL DAM 19 LEVEE NE
27	28	29	27 SNAKE RIVER 28 SNAKE RIVER 29 ELWOOD

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BURR CANYON, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

Joins sheet 29,
Elwood

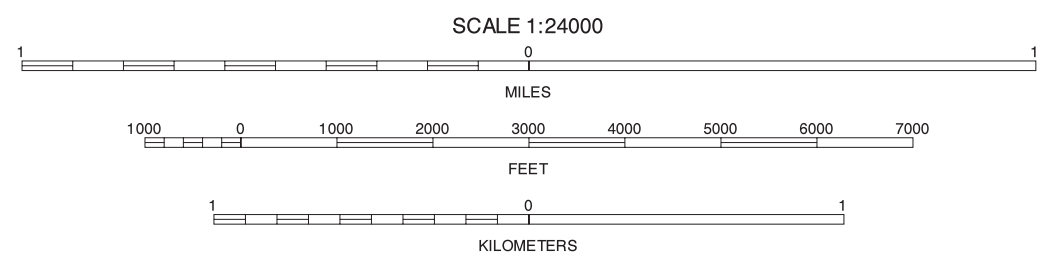


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



7	8	9	7 SULPHUR LAKE
18		20	8 KAHLOTUS
28	29		9 SPERRY
			18 BURR CANYON
			28 MONUMENTAL ROCK
			29 SNAKE RIVER
			29 ELWOOD

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LOWER MONUMENTAL DAM, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle nealtline are for reference only and are included on adjacent map sheets.

Joins sheet 9,
Kahlotus

Joins sheet 10,
Washington South



Joins sheet 19, Lower Monumental Dam

Joins sheet 21, Ayer

Joins sheet 29,
Elwood

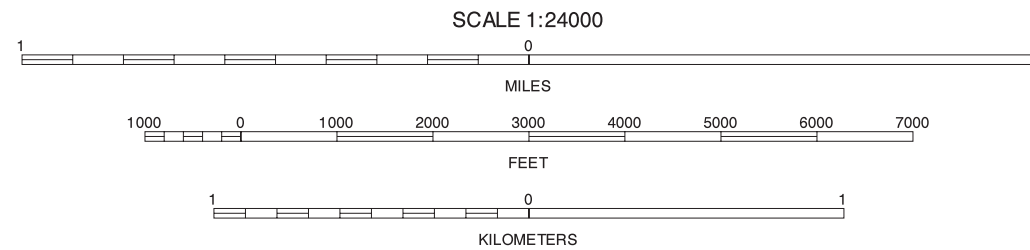
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1996 aerial photography. Cultural layers were derived from the USGS. The public land survey and administrative boundaries were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



8	9	10	8 KAHLOTUS
19		21	9 SPERRY
			10 WASHTUCNA SOUTH
			19 LOWER MONUMENTAL DAM
			21 AYER
			29 ELWOOD

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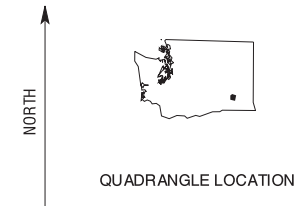
MONUMENTAL ROCK, WASHINGTON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

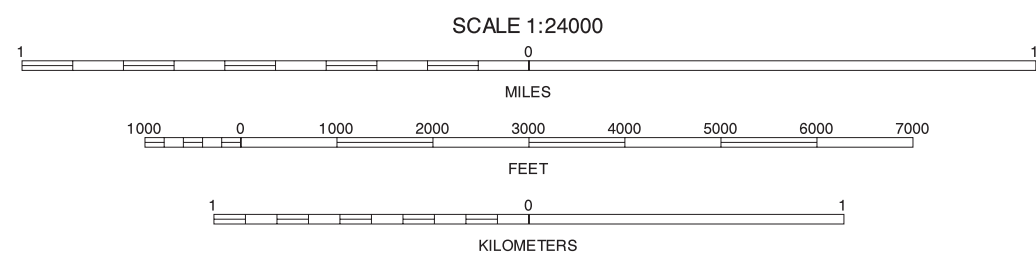


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



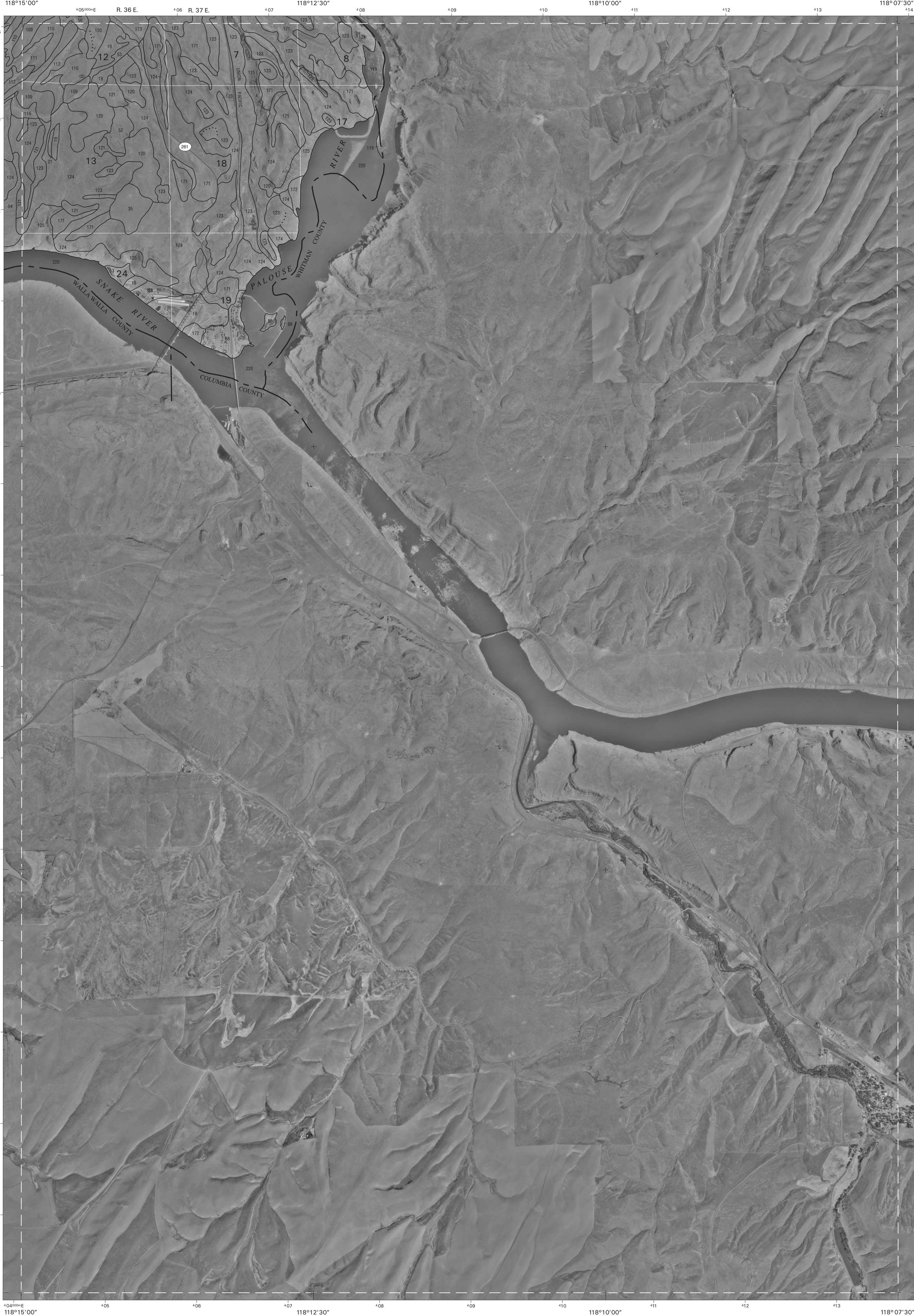
9	10	11
20		22

9 SPERRY
10 WASHTUCNA SOUTH
11 PALOUSE FALLS
20 MONUMENTAL ROCK
22 STARBUCK WEST

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AYER, WASHINGTON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

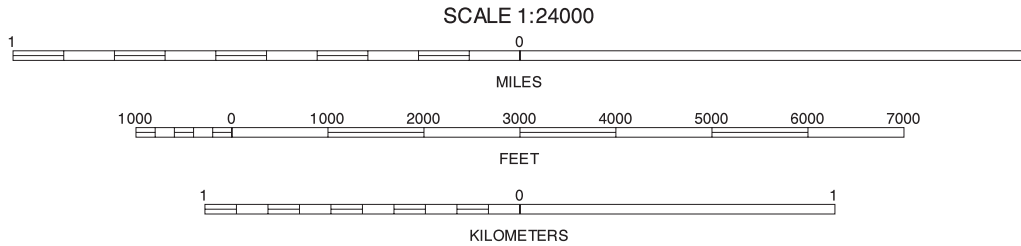


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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



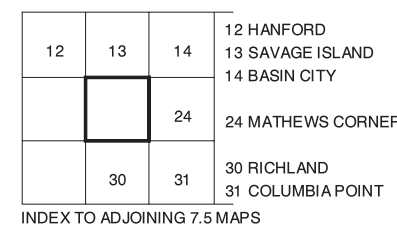
10	11
21	

10 WASHTUCHA SOUTH
11 PALOUSE FALLS
21 AYER

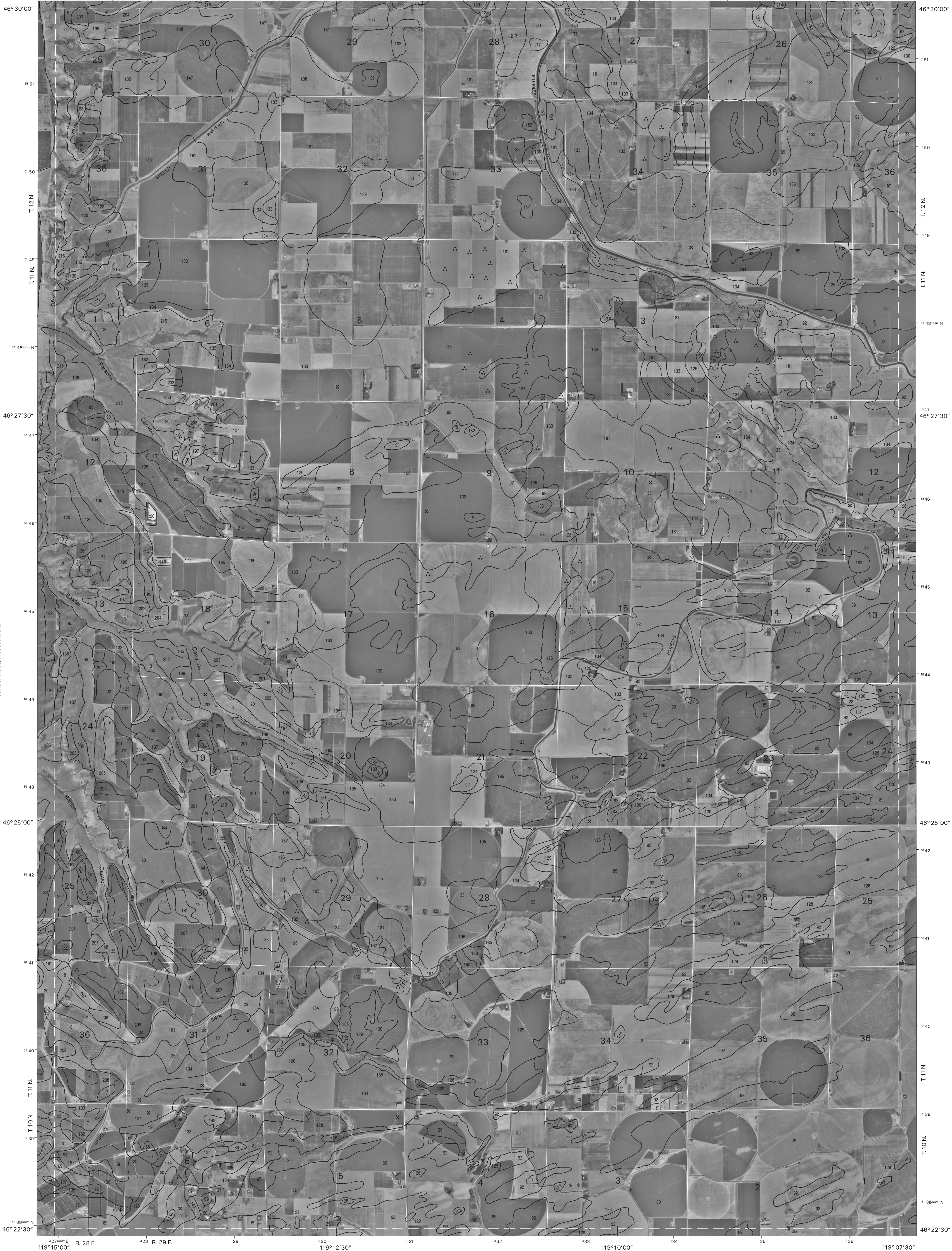
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STARBUCK WEST, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

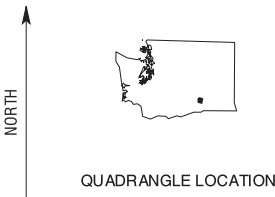


Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

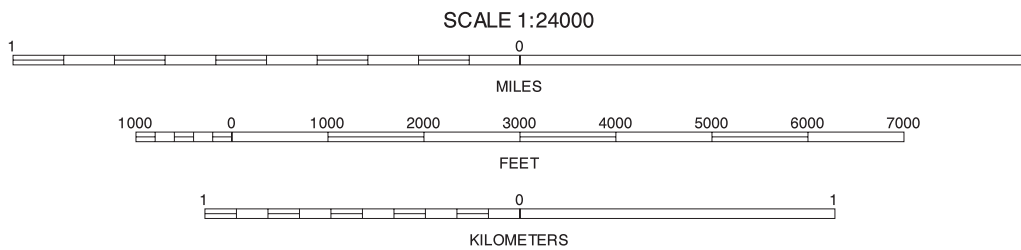


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



13	14	15
23	24	25
30	31	32

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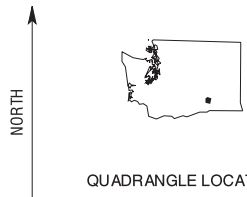
MATHEWS CORNER, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 38

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

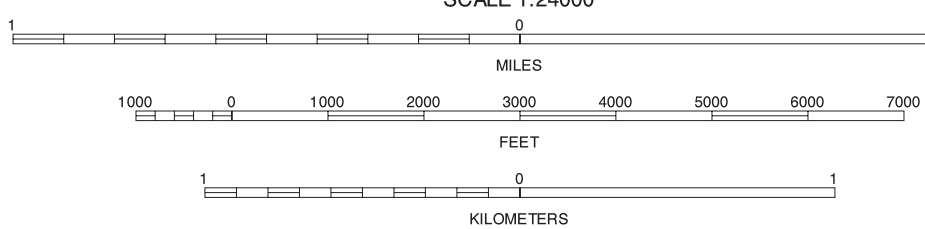


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

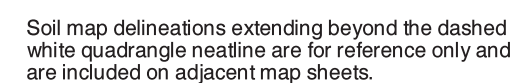


14	15	16	14 BASIN CITY
			15 MESA WEST
			16 MESA EAST
24		26	24 MATHEWS CORNER
			26 RYE GRASS COULEE
			31 COLUMBIA POINT
31	32	33	32 GLADE
			33 LEVEY SW

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ELTOPIA, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



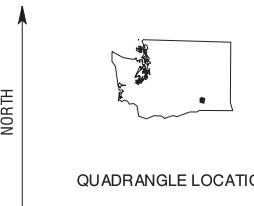
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FRANKLIN COUNTY, WASHINGTON
LEVEY NE QUADRANGLE
SHEET NUMBER 27 OF 38

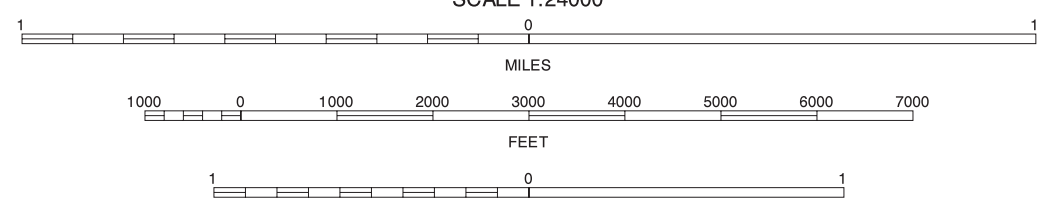


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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



SCALE 1:24000

16	17	18
26	27	28
33	34	35

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LEVEY NE, WASHINGTON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.

16 MESA EAST
17 CONNELL SE
18 BURR CANYON
26 RYE GRASS COULEE
28 SNAKE RIVER
33 LEVEY SW
34 LEVEY
35 PAGE



118° 45' 00" 118° 42' 30" 118° 40' 00" 118° 37' 30"

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

SCALE 1:24000

1 0 1

0 1000 2000 3000 4000 5000 6000 7000

FEET

1 0 1

KILOMETERS

17	18	19
27		29
34	35	

17 CORNELL SE
18 BURR CANYON
19 LOWER MONUMENTAL DAM
27 LEVEY NE
29 ELWOOD
34 LEVEY
35 PAGE

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SNAKE RIVER, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 17,
Cornell SE

Joins sheet 18, Burr Canyon

Joins sheet 19,
Lower Monumental Dam

Joins sheet 27, Levey NE

Joins sheet 29, Elwood

Joins sheet 34,
Levey

Joins sheet 35, Page



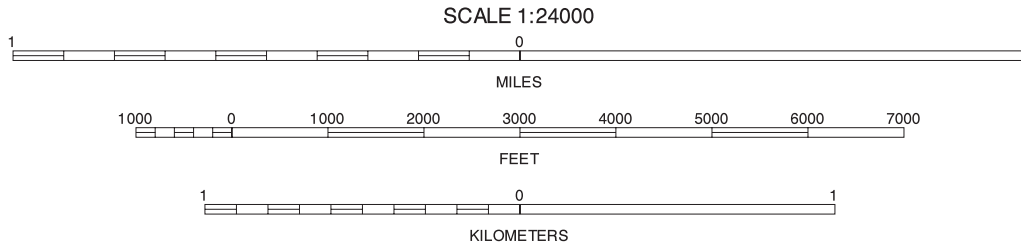
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NORTH



QUADRANGLE LOCATION



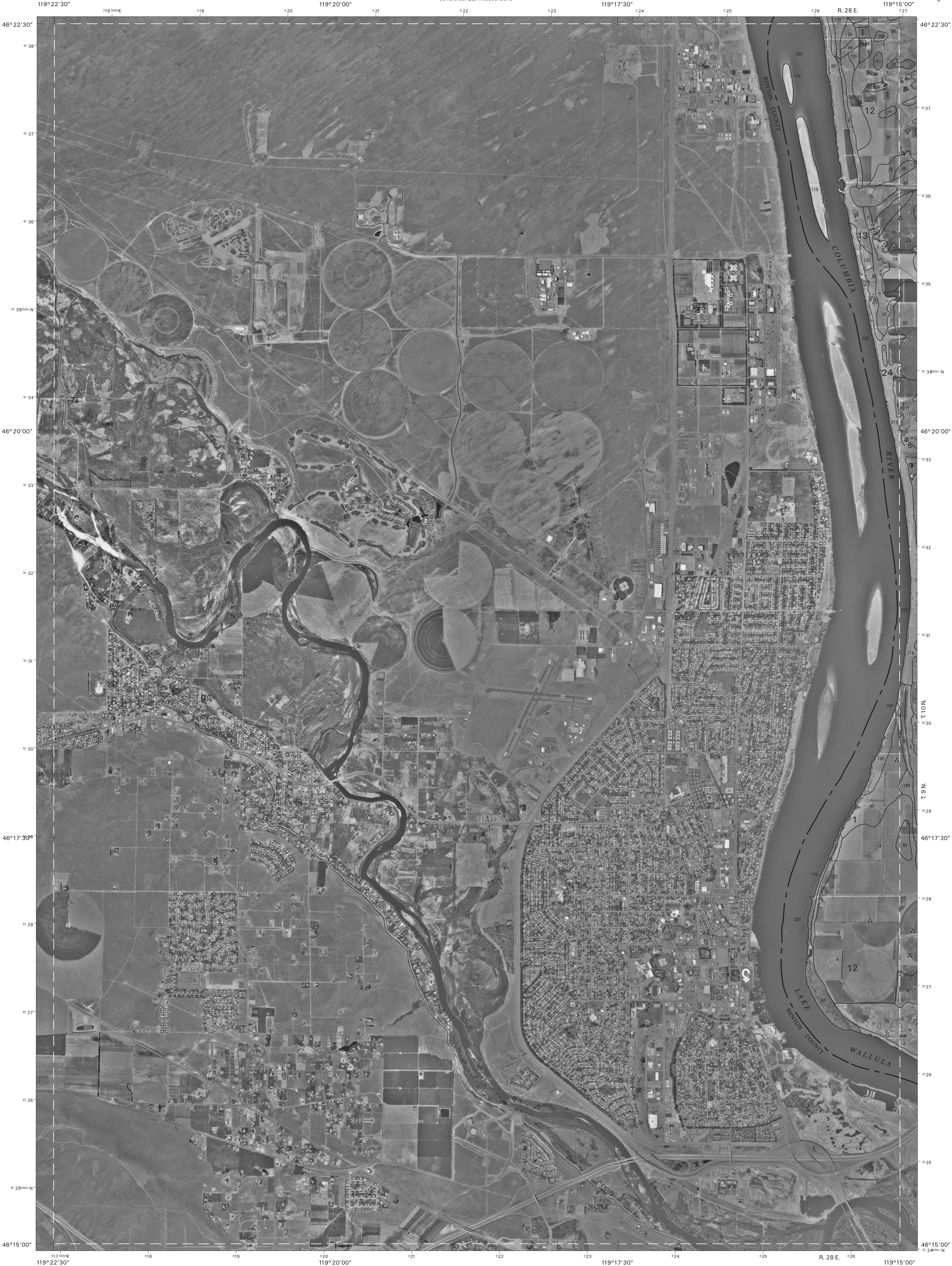
18	19	20
28		
35		

18 BURR CANYON
19 LOWER MONUMENTAL DAM
20 MONUMENTAL ROCK
28 SNAKE RIVER
35 PAGE

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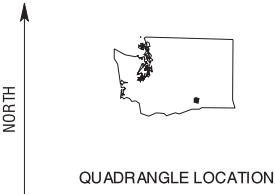
ELWOOD, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 29 OF 38

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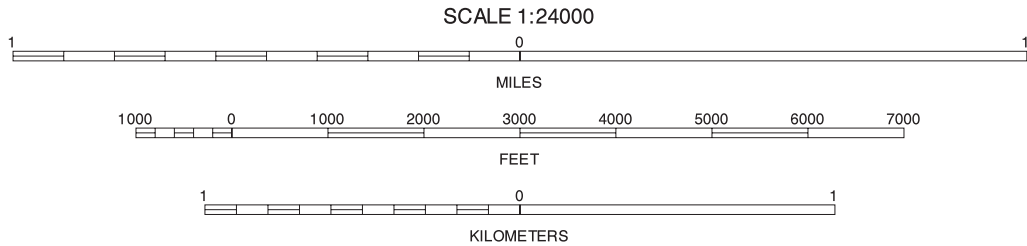


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QUADRANGLE LOCATION



23	24	23 WOODDED ISLAND
	31	24 MATHEWS CORNER
	36	31 COLUMBIA POINT
		36 KENNEDICK

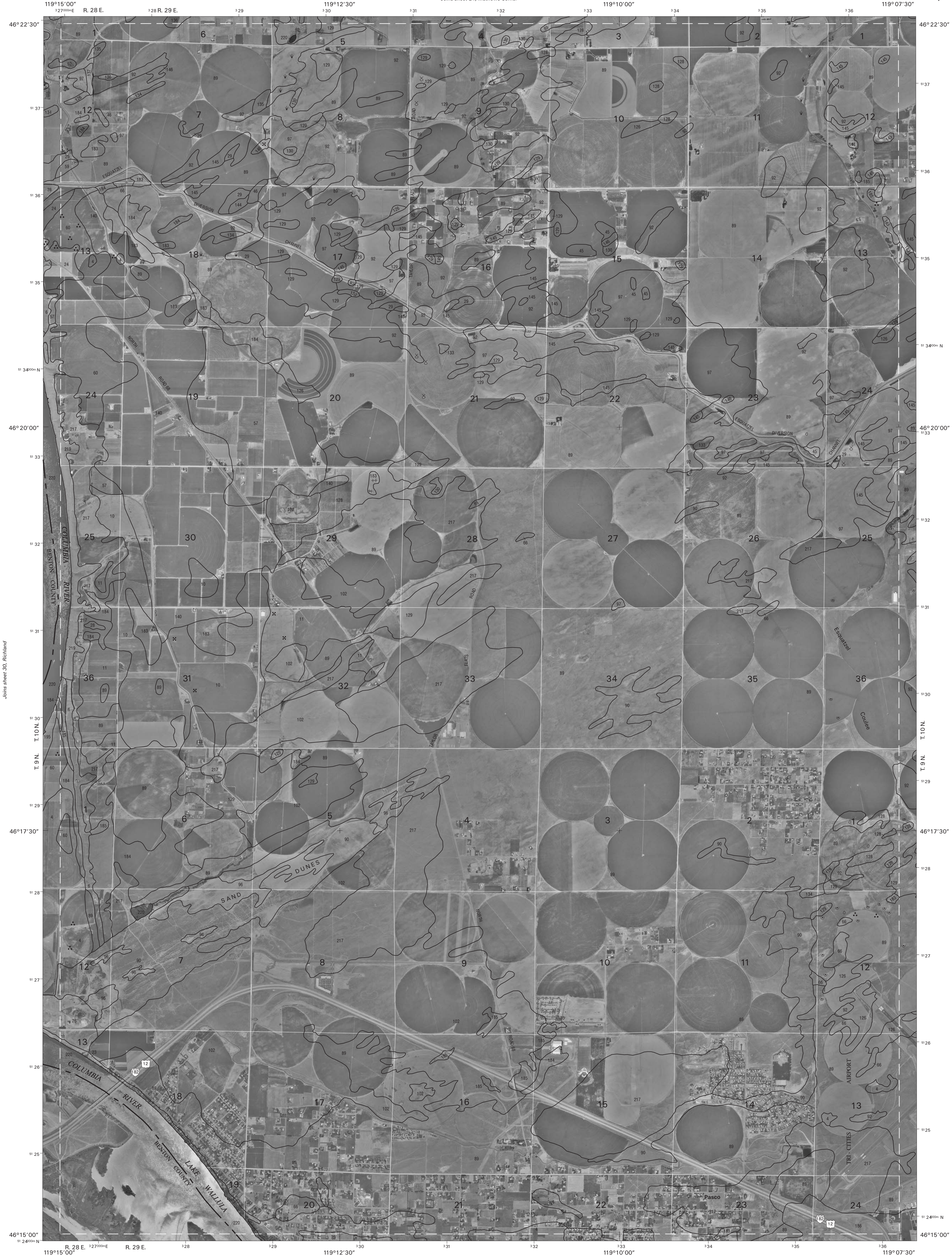
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RICHLAND, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

Joins sheet 23
Woodland Island

Joins sheet 25,
Eltopia

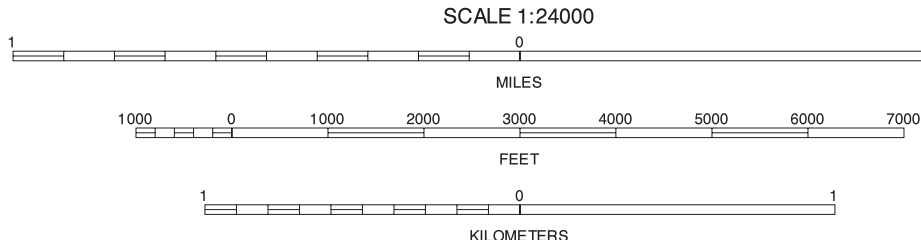


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QUADRANGLE LOCATION

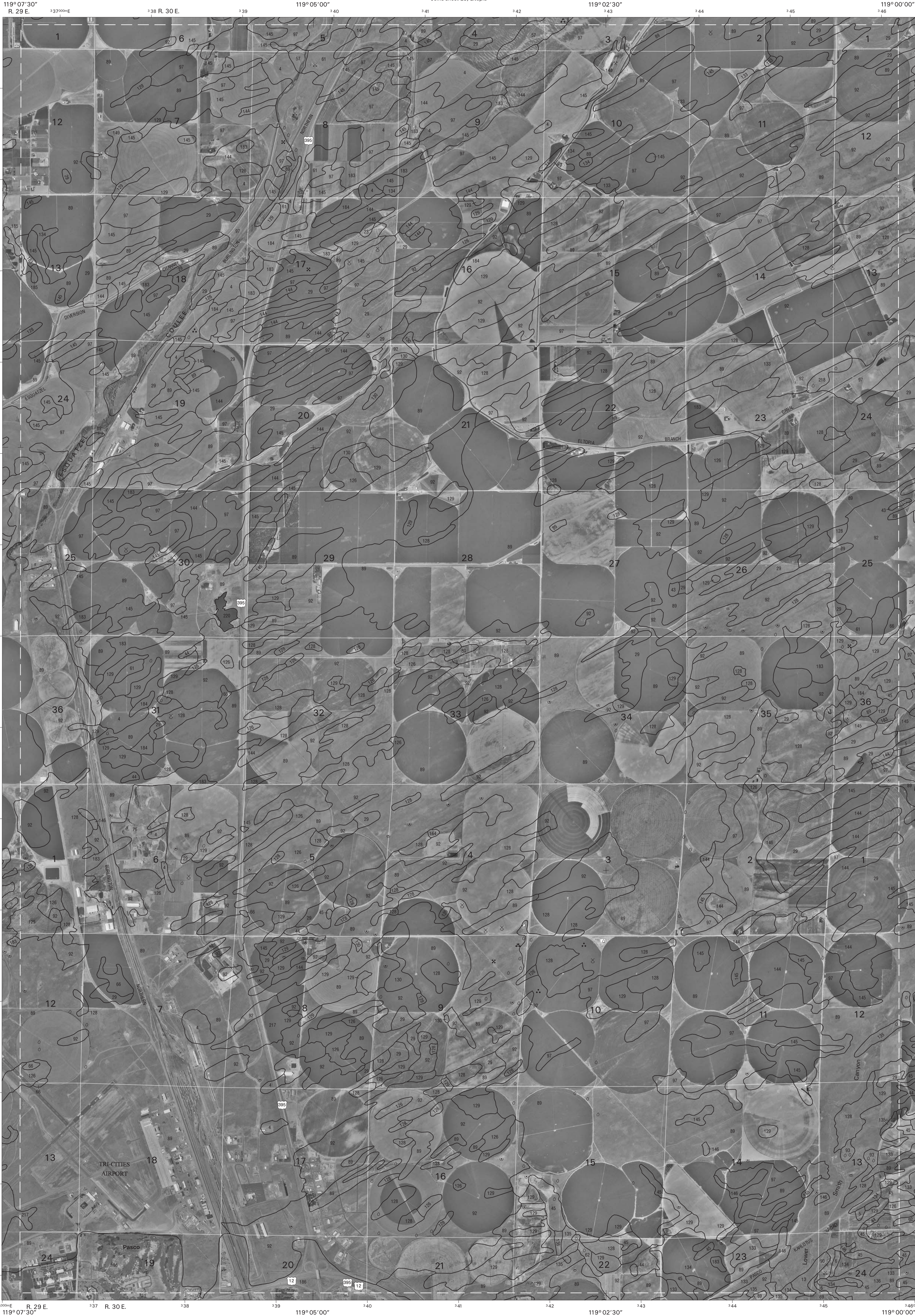


23	24	25	23 WOODLAND ISLAND
30	31	32	24 MATHEWS CORNER
	36	37	30 RICHLAND
			32 ELTOPIA
			36 KENNEWICK
			37 PASCO

COLUMBIA POINT, WASHINGTON
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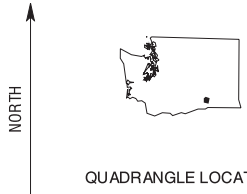
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Joins sheet 37,
Pasco

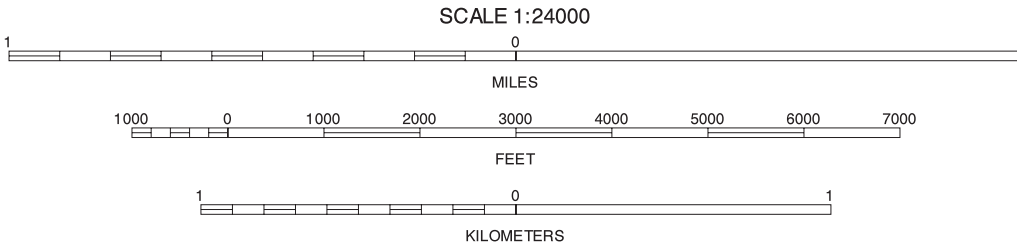


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QUADRANGLE LOCATION

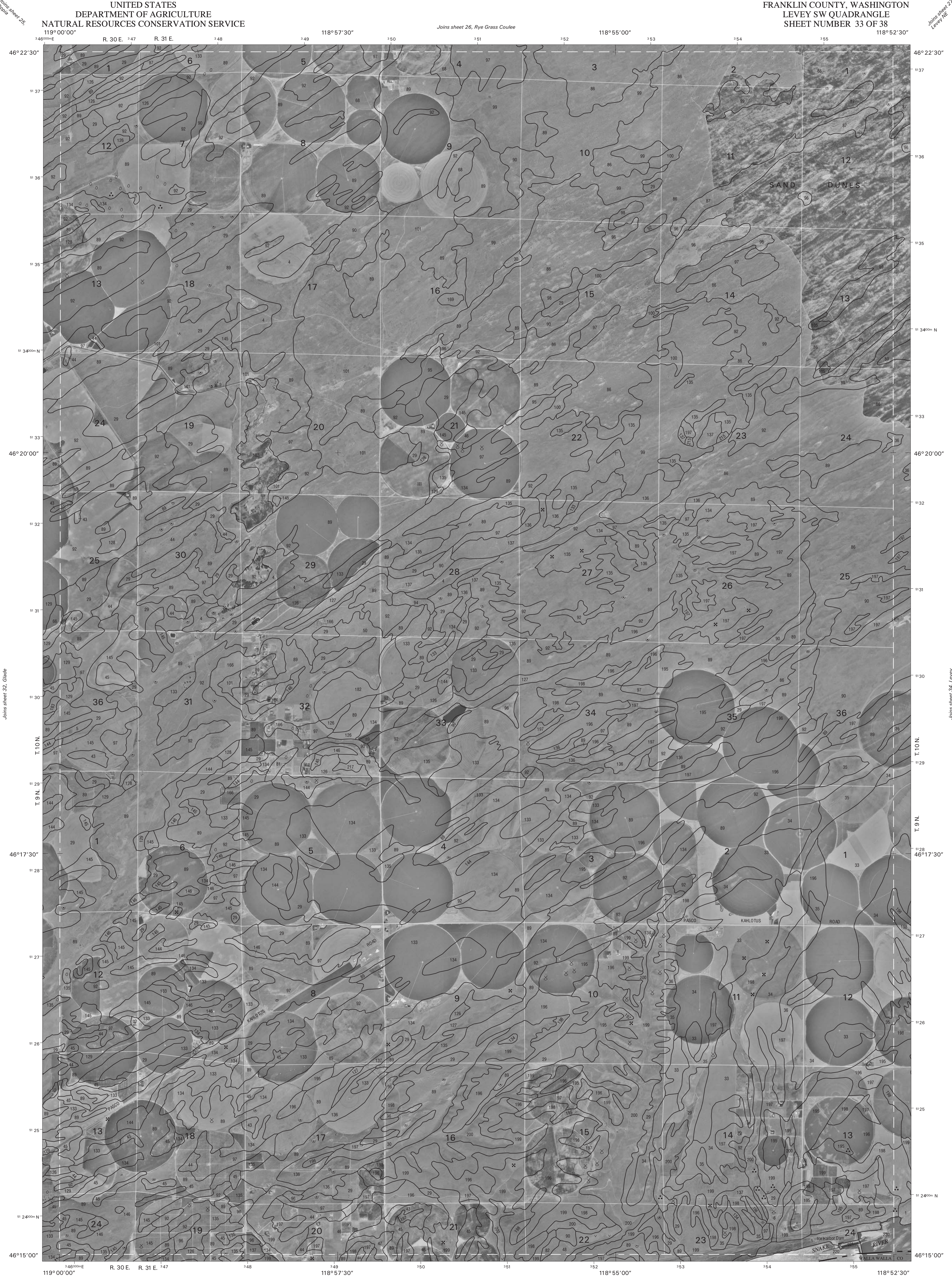


24	25	26
31		33
36	37	38

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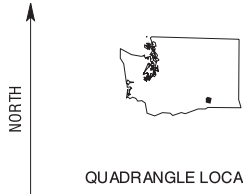
GLADE, WASHINGTON
7.5 MINUTE SERIES
SHEET NUMBER 32 OF 38

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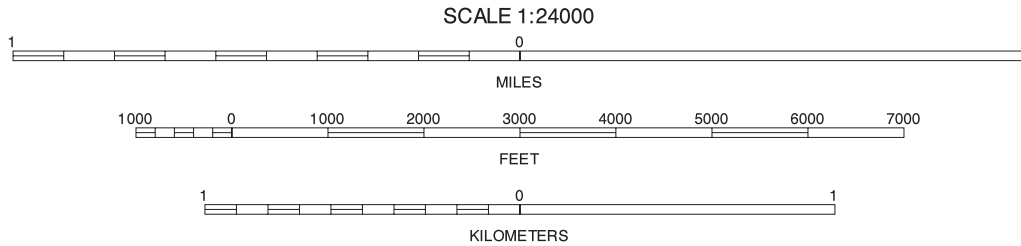


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QUADRANGLE LOCATION

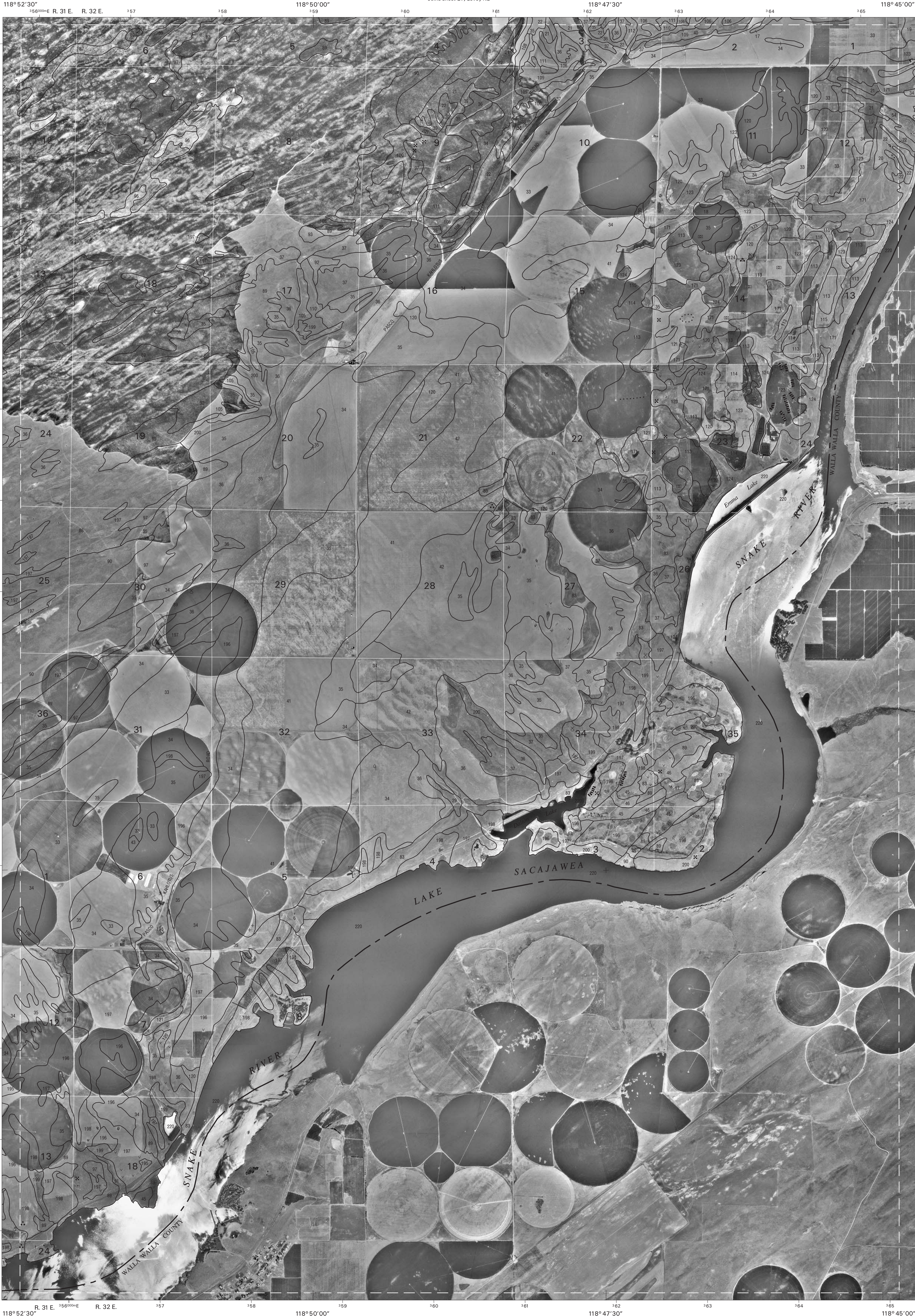


25	26	27	25 ELTOPIA
32	33	34	26 RYE GRASS COULEE
37	38		27 LEVEY NE
			32 GLADE
			34 LEVEY
			37 PASCO
			38 HUMORIST

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LEYEY SW, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.

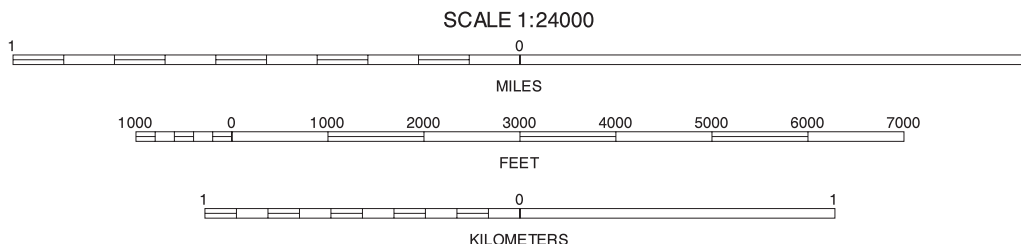


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QUADRANGLE LOCATION

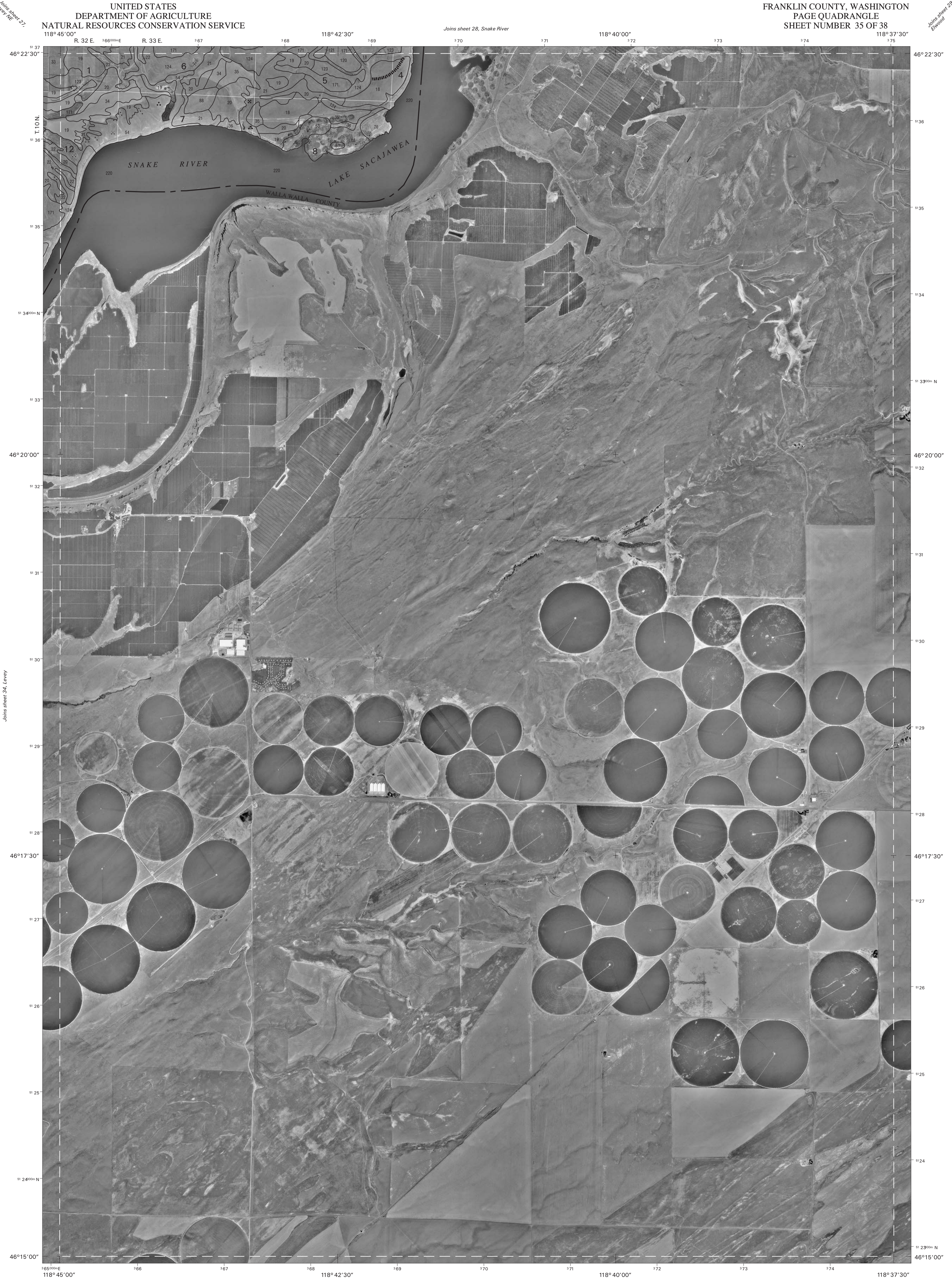


26	27	28	26 RYE GRASS COULEE
33	34	35	27 LEVEY NE
36	37	38	28 SNAKE RIVER
39	40	41	33 LEVEY SW
42	43	44	35 PAGE
45	46	47	36 HUMORIST

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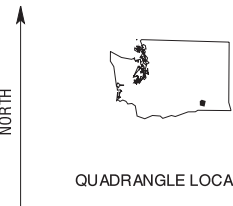
LEVEY, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

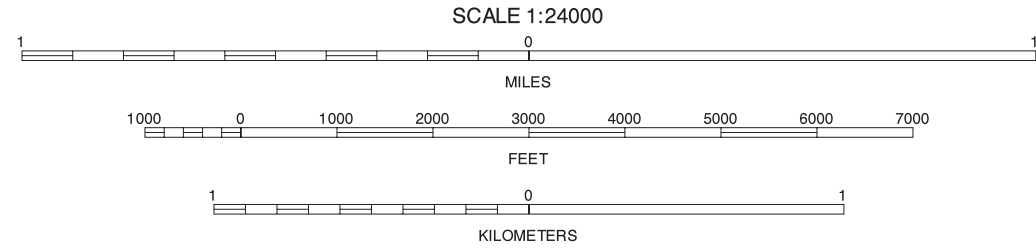


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QUADRANGLE LOCATION



27	28	29	27 LEVEY NE
			28 SNAKE RIVER
			29 ELWOOD
34			34 LEVEY

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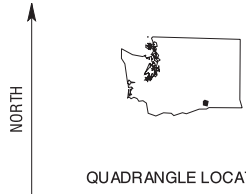
PAGE, WASHINGTON
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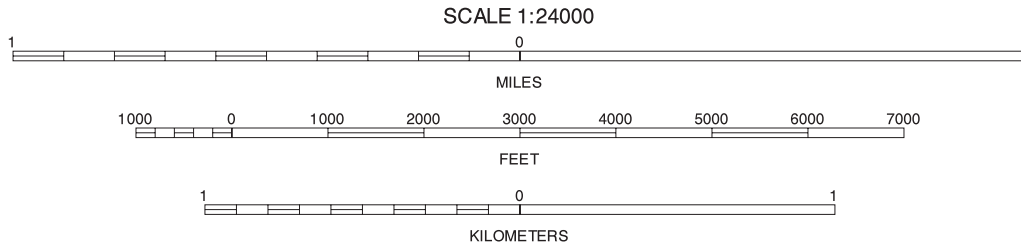


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QUADRANGLE LOCATION



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KENNEWICK, WASHINGTON
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Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

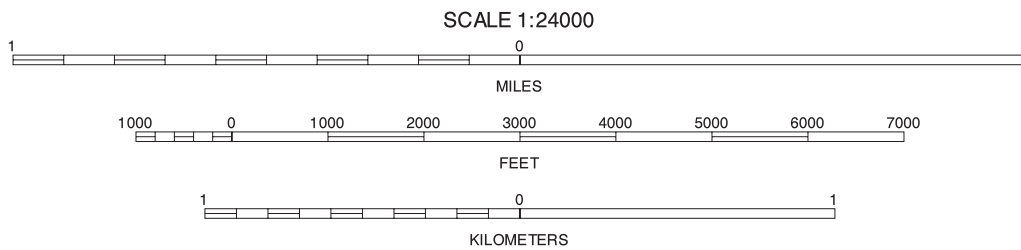


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QUADRANGLE LOCATION



31	32	33	31 COLUMBIA POINT
			32 GLADE
			33 LEVEY SW
36		38	36 KENNEWICK
			38 HUMORIST

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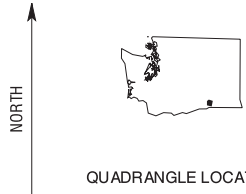
PASCO, WASHINGTON
7.5 MINUTE SERIES
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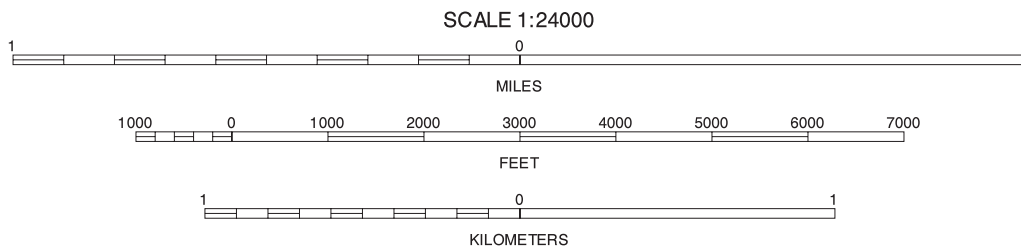


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QUADRANGLE LOCATION



32	33	34
37		

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